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SMITHSONIAN DEPOSIT.

Riter-Conley Manufacturing Company

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Pittsburgh

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PATENT
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The Kiel Gas Works	23	2,750,000
The Buda-Pesth Corporation Gas Works	78	9,500,000
The Tokio Gas Company (Omori Works)	36	4,200,000
" " " " (Sunamura Works)	15	1,950,000
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ADVANTAGES OF KOPPERS' SYSTEM.

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THE AMERICAN
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Address of the President (Hon. Ira C. Copley) of the American Gas Institute, on the Occasion of Its Seventh Meeting, Atlantic City, N. J., Oct. 16 to 18, 1912.

Each year the President of the American Gas Institute, in his opening address, has taken up the questions that are of interest to the gas industry, to the Institute, to its members. The various problems thus discussed have naturally been those that appealed to him as being most important at the time of the meeting. As I re-read the addresses of all the gentlemen who have preceded me as President since the Institute was organized, it gave me great pleasure to find that most of the hopes (and few of the fears) expressed, have been realized. I think, at the present time, there is not a single menace that disturbed any of the gentlemen who have been thus honored, which even appears as a cloud upon the horizon of our industry.

The past year brought to us our fair measure of prosperity, when we impartially compare the condition of the industry in which we are engaged with that of the various lines in which other men are interested and other capital invested. During the year the centenary of the gas industry in America was fittingly celebrated in Philadelphia, under the auspices of the "American Philosophical Society," the "Franklin Institute," the "American Chemical Society," and the American Gas Institute. It was an occasion over which we can all justly take a pardonable pride, for few, if any, other lines have survived such a span of years. Not only do we now enjoy existence at this ripe old age, but we have every prospect for a more vigorous, more lusty and more prosperous existence than at any one period during the entire century. In this connection, let me call your attention to this fact. There is scarcely a single gas undertaking in a growing and prosperous community that is not selling to-day from 2 to 5 times more gas per capita, for illuminating purposes solely, than it did before the first electric lamp was installed in its field of operations. My own experience and observation both lead me to the belief that, as yet, we have nowhere near completely covered the lighting field; and, in this particular department of our business, still further progress and success await the men who, as sellers, grasp the economic value of cheapness and efficiency to the consumer. At the same time the use of gas for domestic purposes is ever increasing and its use in industrial lines has scarcely yet begun.

I wish it distinctly understood that everything in this address represents only my own personal view, that I do not hold the Institute committed to any policy suggested, nor to any opinion expressed; and yet I could not speak my mind fully to you to-day unless I endorsed the position taken by some of the Public Service Commissions, in which they hold that the sale of gas, in large quantities and through long hours to industrial users, at a reduced price, tends to increase the earning power of money invested in gas undertakings, and thus ultimately tends to cheapen the cost of producing and selling our product for the reason that, when we were selling gas only for illuminating purposes, the entire investment in mains, meters and service pipes was lying idle for nearly, if not quite, 19 hours out of every 24. If we preserved a margin of safety the investment for storage was comparatively very much larger than at present. I believe our Public Relations Committee can take this question up with great advantage and profit to the gas industry. If this principle were generally recognized and fairly applied, I also believe there exists an almost wholly unexplored field for still further development of our business.

We, in this country, have gone forward apace in the development of manufacturing during the past year, but that question is fully and ably covered by some of of the papers which our excellent Technical Committee has provided for this meeting.

There is still another matter, which, in my judgment, seems of vital interest to the Institute; and I propose to present it to you exactly as I see it. When the Institute was first organized it was intended, I am sure, to be representative of every line of activity connected with the success of the gas industry as a whole. The constructing, engineering, distributing, commercial, accounting and managing departments are all so inter-related that it seems impossible for me to separate and determine which is the most important. I have spent a great deal of time during the past year, in discussion with the officers and directors of the Institute, in the contemplation of its condition, its aims and its hopes. The past history would indicate that we have almost exclusively confined ourselves to the engineering department. The high character of the work which has been done by this Institute, even in this single department, has more than justified its existence and would warrant a continuance, even if its scope were to be limited to that one department. Yet there are many members of the Institute who are so much interested in all of the various departments, that, in my judgment, it will be necessary for us to determine speedily what is to be the future policy of the Institute. Before offering a suggestion along that line it seems to me the best thing I can do is to present herewith a statement of receipts and expenditures since the Institute was organized. The various items have been grouped together for brevity, and to show you clearly just what income we can count upon regularly; also, just what ex-

COMPARISON OF RECEIPTS AND DISBURSEMENTS.

	1907.	1908.	1909.	1910.	1911.	1912.	Total.
FORWARD CASH BALANCE	.....	$995 91	$1,774.75	$2,065.38	$4,316.29	$6,857.99	.....
Receipts:							
American Gas Light Association	$2.000.00	798.60	.....	.....	.....	.....	$2,798.60
Western Gas Association	117.70	25.90	.....	.....	.....	.....	143.60
Ohio Gas Association	180.91	.....	.....	.....	.....	.....	180.91
Gas Congress	.....	120.41	.....	.....	.....	.....	120.41
Dues	9,590.00	11,355.00	11,302.00	11,460.00	11,585.00	11,840.00	67,132.00
Initiation fees	685.00	1,780.00	1,910.00	1,295.00	1,540.00	1,095.00	8,305.00
Sale of abstracts	.....	.....	2,694.70	1,610.85	1,324.15	1,457.25	7,086.95
Sale of badges	805.00	288.65	773.00	187.60	135.00	90.00	2,279.25
Miscellaneous sales	54.02	901.35	670.20	462.83	403.89	2,321.61	4,813.90
Interest on bank balances	.....	98.75	134.74	133.88	197.67	185.06	749.28
	$13,432.63	$16 364.55	$19,259.39	$17,215.54	$19.501.20	$23,846.91	$93,609.90
Disbursements:							
Gas Educational Fund	$350.00	$350.00	$350.00	$350.00	$350.00	$350.00	$2,100.00
Insurance	.....	14.00	.....	11.20	.....	.....	25.20
Rent	381.00	1,604.50	1,649.61	1,636.85	1,599.80	1,587.34	8,459.10
Salaries	1,047.91	5,144.45	3,859.18	3,875.00	3,900.00	4,221.22	22,047.74
Fidelity bond	.....	.....	40.00	40.00	40.00	40.00	160.00
Office equipment	.....	399.96	84.92	182.25	33.75	222.36	923.24
Library books and binding	.....	.....	89.88	40.40	.....	20.80	151.08
General printing, stationery, postage, etc	2,018.72	1,222.67	945.52	455.96	318.81	1,015.91	5,977.62
Reporting meetings	284.00	.....	248.00	386 85	240.20	623.90	1,782.95
Expense meetings	251.15	.....	808.01	308.39	563.70	188.55	2,119.80
Printing and distributing proceedings	4,844.29	4,574.69	5,866.57	3,958.23	3,652.03	5,397.53	28,293.31
" " " abstracts	1,441.50	.....	3,071.02	1,299.80	1,594.31	1,497.55	8,904.18
Diplomas	126.00	.....	.....	.....	.....	13.50	139.50
Badges	1,531.02	420.74	181.30	175.00	.....	175.00	2,483.06
Miscellaneous	161.13	858.81	.....	179.32	350.61	141.72	1,691.59
Telegraph and telephone	.....	.....	.....	.....	.....	157.07	157.07
Refunds	.....	.....	.....	.....	.....	16.10	16.10
Merchandise	.....	.....	.....	.....	.....	726.84	726.84
Photometric commission	.....	.....	.....	.....	.....	30.85	30.85
Prof. Bone lecture	.....	.....	.....	.....	.....	2,674.33	2,674.33
Gas Institute News	.....	.....	.....	.....	.....	835.48	835.48
Centenary lectures	.....	.....	.....	.....	.....	637.00	637.00
Cash balance	995.91	1,774.75	2,065.38	4,316.29	6,857.99	3,273.86	3,273.86
	$13,432.63	$16,364.55	$19,259.39	$17,215.54	$19,501.20	$23,846.91	$93,609.90

pense account is sure to be incurred if we maintain the Institute, even at its present state of efficiency, and follow only its present scope, not attempting to take on any additional work.

You will note that $3,243.52 of our income in the last 6 years has been inherited from the various gas associations which gave our Institute birth, while at the same time the cash balance at the end of this year was but $3,273.86, so we have accumulated a surplus of only $30.34 during this entire period of time. Yet we find that our initiation fees received have amounted to $8,305 during this period. It must be apparent to each of you that sound financing of the Institute cannot possibly contemplate this as a regular source of income. In fact, we find that it has been decreasing for the past 4 years.

At this point, in justice to the President, the Secretary and the present Board of Directors, I must call your attention to the fact that the surplus has decreased this year $3,584.13. Of that amount, however, this statement shows that $2,674.33 was expended for the lecture by Prof. Bone, at the last annual convention, by order of the Institute itself; also, there has been expended this year on the "Gas Institute News," $835.48, this, also, by vote of the Institute at the last annual convention. The sum total of these two items amounts to $3,509.81; thus you can see that, for operating expenses ordered by your officers and directors of this year, the surplus has decreased only $74.32. There were further items of expense incurred by the Professor's lecture, and by the Centenary Celebration, which would leave a small surplus for the year; but this, of course, counts the $1,095 of initiation fees received as a regular source of income. I am making no comparisons with previous years; but I believe your officers have tried to lay the foundation for covering more ground and all of it more thoroughly than at any time in the past. However, the expense of the "Institute News" will be much larger next year, because it has only covered a few months during the present fiscal year, and its expense will go further into our surplus every year from now on, and within 3 or 4 years (at the outside) we must face a complete wiping out of our surplus, unless some measures are taken either to decrease the efficiency of the Institute work or increase the revenues. The problem which confronts us is, "Are we covering all the departments of this industry satisfactorily; are we fulfilling the expectations and hopes of the men who founded it?" I am casting no reflections upon any man who ever held an office or who has ever consented to act as a director of this organization. My own experience leads me to the irresistible conclusion, that the man who has served this Institute in any such capacity has given much of his valuable time, and for the benefit of the Institute; but it is my unqualified opinion that we must either broaden our aims, broaden the scope of our work, or else content ourselves with representing a few, possibly only one, department of the gas business.

With the statement of finances which I have made, and this statement was given to me by our Secretary, and with the vision of the possible widening of the usefulness of the Institute, I suggest to you that, before this meeting adjourns, the new President be *directed to appoint, with the advice and consent* of the new Board of Directors, a committee of not less than 5 to revise the Constitution; and, further, to direct that a copy of such revision be sent to each member as soon as the committee has finished its work, and that action be taken thereon *at the next annual meeting.*

In this connection I am going to suggest to you that the Institute itself determine the scope desired for future work. My suggestion is that we should have several sections, one representing practically each department, and that every man who is interested in anything connected with that department have a vote in such section, and on every subject of interest to the section. However, I think *a committee judiciously selected*, as I know it will be, can better determine the details; and I, for one, would be content to leave this in their hands. I should probably take the liberty of writing them some suggestions, and I hope that every member of the Institute will do the same.

Each year the President has one sad duty to perform, the announcement of losses to our Institute as our members pass away. This year the number is 18. Each and everyone will be missed, but we place their names on the honored roll with the kindest memory of their work as members and of their worth as men.

I really cannot close without expressing to you the sense of gratitude I feel toward the many men who have so generously lent their help in the prosecution of the work during the past year. It would be impossible for me to name all individually, but the Directors have borne with me in patience and have freely given of their time. The Secretary, entering upon his duties without preparation or experience,

has worked unceasingly, faithfully and intelligently, loyally seconding every line of suggestion which I have made. Only a few of you are aware of all the conditions surrounding the present administration, but to those of you who do not understand, I could not conscientiously omit the name of Mr. H. L. Rice, in expressing my obligation for individual help of the most patient and efficient character during the past year.

I am very much in earnest about the need of revising the Constitution and planning for work of a broader scope, also providing sufficient revenues for that purpose, and I am sure any one of you who will spend a little time in going over the figures which I have presented, will agree in this particular. I most earnestly recommend that you direct the incoming president to appoint such a committee as suggested.

Our industry represents an investment in round numbers of $1,000,000,000, and I cannot believe that this Institute will do other than push forward. If my administration can only be responsible for an impetus, no matter how inconspicuous, toward a wider sphere of usefulness, the mere fact of such ultimate achievement will be sufficient gratification.

Gas Versus Coal for Water Heating Appliances.

[Prepared for the 21st Meeting, Michigan Gas Association, by MR. D. W. ALLMAN, Toronto, Can.]

In dealing with water heaters of any kind, the main question is: "What are the points of advantage to the general householder?" Following this is the cost to maintain and the cost of production. The latter is a point taken as the guide, being the money making proposition, the former point being entirely ignored, which should not be so. The cheap article falls sooner or later, either from structural defects or upon the point of cost to maintain, as being greater than that of the better constructed article, and the manufacturer of the superior article wins out in the end.

There are, and always will be, men ready to buy and force upon their clients inferior heaters, especially gas water heaters. Their general success lies in the amount of ignorance they possess in not knowing what is meant by a good, reliable article. There seems no remedy, other than the by-laws of municipal power, in setting up a standard of efficiency based upon a mutual basis with gas companies. Much good would be the result, and many lives would be saved, that were lost by inferior gas appliances and the very inferior workmanship in fitting up, generally.

There is no getting beyond the fact that a reliable article, showing better results than its nearest rival, must claim a first place on the market. It is needless to point out to the manufacturers of gas heating appliances the necessity of seriously grappling with this question, because of the great demand now being made upon gas as a readier and cheaper way of dealing with the domestic work of the household. It has never been so great as now, and I speak from 40 years' experience in mansion work both in Europe and on this continent. Furthermore, I would like to sound that note of warning to those reliable tradesmen handling such goods, and installing them as a business, to pay more attention to this general demand for gas heated appliances. If not, they will wake up to find that it has passed entirely out of their hands; that which was formerly the main revenue of their business.

Should this take place they have only themselves to blame, as the fact is pointed out in the trade JOURNAL on every hand, and any ordinary tradesman knows, that as a substitute for coal heated appliances, gas has no competitor likely to disturb the position of the gas producing companies for some time to come.

Should it ever be possible to introduced ectricity as a commercial competitor for water heating purposes as against gas, I should then be more reticent in encouraging the close study of gas for that purpose. On the other hand, for many well-known reasons, it can be substituted.

The heaters I am about to deal with later are gas water heaters, and should be dealt with as such, not confounded with coal heated boilers of any description.

Apart from my opinion regarding the use of gas, it remains for the consumer generally to decide what are the advantages over coal doing the same work. All the scientific proofs possible will not move some people in the matter, therefore, my brief paper is intended for the more progressive spirits in keeping pace with the times.

It seems scarcely creditable to think that thousands of people believe it cheaper to light a coal fire to boil a gallon of water than do the same work with gas, even though you tell them 4 feet of gas is all that is required, and at a fraction of the cost of coal, to say nothing of the trouble and loss of time. Now, this ignorance generally kept baek the use of gas so long, not so much the fault of the householder as the impracticability of the tradesman in properly laying the recommendations before them. What this lack of technological training has brought about is the cause of the gas producing companies taking up the matter so decidedy, having in view the approaching competition, and, by setting diligently to work, have found out the mistake and upon whose shoulders rested much of the blame.

And what do we find to-day? A whole army of trained officials, under their control diligently and persistently calling upon the householder, trying to remove all stigma against the great advantages the use of gas does show, and all without charge to the consumer. It may be considered expensive; but both parties are the beneficiaries. This does not apply to this continent only. I may say that in almost all progressive European cities we hear of this same movement on foot. As may be expected the right to do so has been questioned in more cases than one; evidently the consumer has been greatly benefitted. It remains a serious question, "Who else is there with a restricted right to say that this shall not be done?" There possibly may be such law; but I doubt it. Both municipal and private producers are following out the same course; their power and wisdom are great against a few prejudiced minds of a self-interested few.

A perfect gas water heater is, in my opinion, one from which boiling water can be obtained for all purposes, whether dietetic or commercial. The former use, which is well known, claims the right of having a perfect heater, covering a very wide claim indeed, especially when scientifically adjudicated upon. Therefore, it should be made quite clear that a water heater intended for general, portable or dietetic use, is very distinct from the one used for commercial purposes.

There are coal heated combination systems (of which I have fixed many), but which could not be claimed perfect for dietetic use. There may be a gas heated combination system, but as yet I have not come across a reliable one. There are also many so-called instantaneous water heaters, that carry with them the power of instantaneous death warrants, if not very carefully handled by the owners.

A heater absolutely free from explosion risks, and so constructed that the gas products cannot affect the water, one from which 20 or 30 gallons can be drawn instantly, and which can be gauged to obtain the same amount at any desired temperature for either purpose, domestic or commercial, must be automatic in action, both gas and water, and entirely self cleansing and free from metallic or corrosive effects. It must also be free from hydraulic pressure, one whereby any given radiator can be instantly heated and without at all affecting the drinking water or bathing water; one which can be used as a combination heater winter and summer alike. Such are claims under which at least one heater is being brought before the public. Details as to cost to install and cost to produce will compare favorably with any system showing equal results. For general guidance I may state that such a heater is made entirely of sheet copper, block tin faced, approximately 90 to 100 pounds in weight, as being suitable for a 15 to 20-roomed house; for a smaller house the heater is reduced accordingly. The weight being given, and the vessels retaining the water being circular, are very easily taken apart for repairs or refacing.

The radiators preferred in accomplishing the claims made for its use are of the pressed steel type, owing to their lightness in material. When once the heater is allowed to get hot any given radiator can be raised to near boiling point in 2 or 3 minutes, kept at a uniform temperature at the cost of an ordinary incandescant lamp per radiator. One or all the radiators can be kept going, and each one can be had at a different temperature; that is, one floor might be run at 212° internal water temperature and another as low as 100°.

The heater is used for the domestic supply during the summer, and if desired, any radiator can be heated in emergency in a few minutes without leaving the room at any hour. The whole system is governed from one point; the kitchen generally, or each room, can be separately operated as desired. But the center control is for the purpose of unnecessary waste where more than one family resides.

If the artificial gas maintains a right standard of efficiency and where due caution is given to the control center against the uses and abuses of the gas, I have every cause to be believe that heating by gas is assured if the price comes under 70 cents and where a permanent supply can be depended upon and not intermittent. In cases

where intermittent supply exists, or whenever the gas goes off beyond the meter, there is introduced a self-acting retaining valve preventing gas escaping. This valve will not open until attention is given it and should prove of high value wherever there is intermittent service.

Counter Heater, for Restaurant Use, etc. Radiator with Auxiliary.

Primary Heater.

In concluding this brief outline I may add that, after many years of practical experimenting with gas for domestic use, I have decided to my own satisfaction that gas is far ahead of anythig yet under test, both in cleanliness and cost as a labor saving agent. No man as yet has ventured to state what is the actual percentage gained by the use of gas. It should not be lost sight of, but, comparing the cost of gas with that of coal for house heating, the labor cost must be taken into account. It is direct outlay on the same basis as the cost of coal, and should not be treated otherwise. Again, you pay for the stock of coal in advance of using it, whereas you pay for the gas after consumption. In preparing an accurate statement, when finally bringing this type of heaters into operation, these allowances will be considered on actual cost basis.

MR. MARSTON'S successor, as Vice-President and Treasurer of the Gas Tip and Self-Lighter Company, is Mr. J. E. Wilmont, whose activities heretofore in connection with the Company have been many and successful.

Calorimetry.

[Address by MR. WALTER H. HINMAN at the Eleventh Meeting of the "Gas Meeters," New York City.]

Mr. Chairman and Fellow Members of the "Gas Meeters": I have been asked to give to you a talk on calorimeters and gas testing with calorimeters. Calorimetry has come into great prominence the last few years and its advancement is going on by leaps and bounds, and will undoubtedly be the legal way of rating gas. Prof. Junkers, of Germany, was the inventor of a calorimeter upon which the instruments of to-day are based.

A calorimeter is an instrument for measuring heat. The name calorimeter is derived from color, meaning heat, and from meter to measure. The type of instrument that the gas man has to consider is in principle nothing but a water heater. This sounds simple enough, but the details that makes it an instrument of precision are complex and intricate.

You have just passed through our factory and, having seen a calorimeter and its parts, know what a calorimeter looks like. The present status of colorimetry is very important. Some of the States have already discarded the candle power requirement and adopted a calorific value. Many are considering it, and I believe it will not be long before most of our regulations will be calorimetric instead of candle power. All of our old requirements are in candle power, and the gas men are reluctant to change until they know just where they stand. All large gas companies have calorimeters, and are making tests, some of the Gas Associations are conducting tests through committees, or else the various members are making individual tests and comparing results. Everywhere that the subject of calorimetry has been considered it has been conceded that it is more scientific and exact than the candle power standard. Gas men generally regard the calorimetric standard easier to work to, than the candle power requirements. What they do not like is the idea of a double standard. Under the present day use of gas there must be a good light given by the open flame burner. Under the prevailing methods of gas manufacture this lumenousity is always secured by any of the B.T.U. requirements that have been made.

The use of gas solely for its calorific power is increasing constantly. At the start of the gas industry, gas was used solely for its light-giving power, in the open flame. As time went on gas was used for heating and cooking, and in gas engines, incandescent burners and innumerable industrial appliances. Each step, in fact, increased the consumption of gas for its purely heat giving qualities. To-day it is safe to say that 80 per cent. of the gas is used for its thermal power. As time goes on that percentage will be increased until it reaches close to par of 100. It would seem reasonable that the thermal standard should be the one adopted, as it truly represents the value of gas for its greatest usage.

The thermal standard is scientific and easily worked to. The great majority of the men present are associated with enterprises having solely as their basis the utilization of the heat of combustion.

The result, as indicated by a calorimetric test, is always very close to correct. A calorimeter is easy to operate after short practice to one who is careful of his readings. The three factors, quantities of water, and of gas, and temperatures, are readily obtained. The water is weighed to $\frac{1}{1000}$ of a pound, and the percentage error is practically nothing. In ascertaining the amount of gas used is where the greatest source of error lies. This is due to error in setting the water line of the meter. The inlet and outlet of the meter must be open to the air at the time the water line is set. This point, frequently neglected in the past, has led to considerable error. The thermometers can be read within $\frac{1}{10}$ of 1 per cent. error. With all errors taken into consideration an average operator can be easily within 1 per cent. of correct, and a very careful one within $\frac{1}{4}$ per cent.

With calorimetry there is practically no such thing as personal equation. It is a question only of the accuracy of reading the thermometers, the meter and the scales and adjusting the water line, all of which can be done with a very small percentage of error. The results obtained by the use of the calorimeter can, therefore, be very closely relied upon.

The calorific power of gas is sometimes obtained by chemical analysis, but it is an extremely difficult task to make an exact analysis of gas. Further, it is expensive work, and requires considerable time and a skilled chemist.

The complete apparatus consists of a $\frac{1}{10}$th cubic foot drum, wet meter, wet governor, calorimeter, with 3 thermometers, small gradu-

ate, rubber tubing, weighing balance and copper water buckets, or, in place of the two last items, a large graduate.

The $\frac{1}{10}$ drum meter is the standard wet test meter, fitted with water line gauge glass, spirit levels, thumb screw feet, siphon pressure gauge and other customary fittings. The drum shaft is of German silver and all the sheet metal is of tinned brass.

The wet governor is made of brass, nickeled. It supplies the calorimeter with gas at a perfectly uniform pressure. A set of weights is furnished with the governor.

The calorimeter is constructed on the same general lines as the Junkers. The two water thermometers, however, are set on the same level, which is a great convenience in operating. On the outlet weir is a 3-way cock, which allows the water passing through the calorimeter to go either to the waste or to the weighing or measuring receptacle. The operation of the 3-way cock is as follows: The water running through the calorimeter, before and after the test, goes to the waste. At the instant the meter hand comes to zero the key of the 3-way cock is turned. When the desired amount of gas has passed through the meter the cock key is instantly turned back to allow the water to go to the waste. There is a vent tube on the cock to allow all the water to drain out of the tubing going to weighing or measuring receptacle. By the use of this 3-way cock the water used during the test is accurately and easily obtained.

The exhaust tube of the products of combustion has a damper, on the axis of which is a hand moving in a graduated axel. By this means the position of the damper is definitely known and can be reset in subsequent tests. The burner is provided with a baffle screen and a mirror for observing the condition of the flame.

We have recently made some very important improvements in calorimeter construction. It is possible now to take the instrument all apart to clean all passages. The burner has been given a base so that it will stand upright when out of the calorimeter. There has been added a plumb bob to insure the instrument being properly set up. The sheet metal and inner tubes are of copper, tinned inside. The fittings are of brass. All the exterior parts are inclosed.

The two water thermometers are the best grade calorimetric thermometers obtainable, and are provided with adjustable telescopic drafts. The weighing balance is sensitive to 1,000 of a pound. It has steel knife edges and agate bearings. The scale on the beam is divided into 100 parts, each part representing $\frac{1}{1000}$ of 1 pound.

Two water buckets are furnished. These buckets are made of copper, tinned on the inside and polished on the outside. Their capacity is about 9 pounds each. When the buckets are placed on the scales they are so arranged as to balance. If it is preferred to measure the water a graduate of the desired size can be furnished.

In accordance with recommendations by the Committee on Gas Calorimetry of the American Gas Institute, we are furnishing all our calorimeters with baffle plates on the burners to prevent downward radiation from the gas flame.

The manner of working the calorimeter is as follows: The apparatus is placed in position and the following directions should be observed.

The meter should be leveled, the inlet and the outlet connections being open to the air, and the meter filled to the proper point with water of the same temperature as that of the gas which is to be tested. The water line should be very carefully set so that the lower part of the meniscus is exactly opposite the pointer. In setting the water line, the meter should be filled with water to a little above the pointer, the meter drum revolved two or three times by passing gas through, and then the meter disconnected from the gas and the water gradually drained by the drip cock until the water line is correctly set. Next, make all joints and connections on the meter perfectly tight. The governor should be filled $\frac{3}{4}$ full of water, and the gauge on the outlet $\frac{1}{4}$ filled with water.

The calorimeter should be assembled and then adjusted to a vertical position by means of the screw feet. The center hose connection on the inlet weir should connect by tubing to the water supply. The side connection on the inlet weir should connect to the sink by tubing to carry away the overflow water. The vertical outlet of the 3-way cock on the outlet weir should connect by tubing to the weighing bucket. The side outlet of the 3-way cock should connect by tubing to the sink. The two water thermometers are set in the sockets and the telescopic sights placed in position. The thermometer, ranging from 32° to 100°, is set in the socket for the inlet water, and the thermometer ranging from 60° to 110° is set in the socket for the outlet water. The small thermometer is placed in the socket in the exhaust flue. Set the damper fully open on the exhaust. Open the graduate cock on the inlet water to the 90° mark. Con nect the meter, governor and calorimeter with tubing to the gas supply. Remove the burner from the post of the calorimeter. Close the cock on burner, turn on the gas and observe the meter hand for tightness. After making certain that everything is tight turn on the water supply to the calorimeter and allow the water to pass through the side outlet of the 3-way cock. Then, having the burner outside of the calorimeter, light it and adjust the air supply so that the flame is barely tipped with yellow. Then insert the burner in the calorimeter, placing the burner as far up into the calorimetcr as it will go. Adjust, by governor or burner cock, the rate of gas consumption to about 6 feet per hour. This gives 1 revolution in $\frac{1}{10}$th of the meter hand on the $\frac{1}{10}$ drum meter. Next close half-way the damper on the exhaust. Then examine, by aid of the mirror, the gas flame and adjust the air supply at the base of the burner to give a flame faintly tipped with yellow. Adjust the damper in the exhaust flue until the air supply is right. If the flame has a tendency to jump there is insufficient air.

After the gas has been lighted about 5 minutes adjust the water supply by the quadrant cock to give a difference of 15° to 18° between the inlet and the outlet thermometers. Allow the calorimeter to run at least 10 minutes before making an official test. When the calorimeter is first installed, and fresh water has been used to fill the meter and the governor, the gas should be burned for several hours before making any test. It would be well to remove the burner from the calorimeter, light it and allow it to burn for an entire day before making tests. By so doing the water in the meter, and all parts of the apparatus become saturated with gas before a test is made.

In making a test, the large hand of the meter is watched and at the instant it comes to zero the 3-way cock is turned to direct the water to the weighing bucket. The inlet and outlet thermometers are alternately read until the large hand has almost made 2 revolutions. At the instant the large hand completes the second revolution the 3-way cock is again tnrned to run the water to the waste. The heat value is then obtained by computing from the results reeached.

The B.T.U. content is found by the equation

$$\frac{WXT}{P} = \text{number of B.T.U.}$$

W = weight of water used during test.
T = difference in temperatures between inlet and outlet thermometers.
F = cubic feet of gas burned.

The fundamental principle is that the heat from the burning gas is absorbed by the water running through the chambers which surround the passages for the products of combustion. These products of combustion rise from the gas flame and strike the dome plate, then pass through the vertical tubes, then into the flue chamber and out through the flue. Surrounding all gas passages is circulating water.

The caloric results are expressed in calories or B. T. U. A caloric is the amount of heat required to raise 1 kilogram of water 1°. A B.T.U. is the amount of heat required to raise 1 lb. of water 1° F. In America the British Thermal Unit is almost entirely used and it is denoted by the initials B.T.U.

There is at present a great deal of talk about the gross and the net heating value. When gas is burnt the hydrogen combines with oxygen and forms water. This water is vapor in the combustion chamber, but when the products of combustion come in contact with the surfaces about which water is circulating, it condenses and is drawn off as water at the base of the calorimeter. As this water vapor condenses it gives off heat known as the latent heat of condensation. The gross heating value includes this heat of condensation, the net heating value is without it.

Almost everyone is expressing his results in gross or total B.T.U. This would seem the logical way as the total available heat is then given.

A word in general on the calorimetry room and the fitting will not be out of place. First of all, the room should be free from drafts and temperature changes, have good ventilation and air supply, and have the apparatus conveniently arranged. It is customary to have a water tank placed near the ceiling of the room to give a supply of water to the calorimeter. It is well to have the tank of at least 5 cubic feet delivery capacity. This would allow continuous calorimetric testing for one hour. The purpose of the tank is to have a supply of water at a uniform temperature and at the temperature of the room. Some of the large gas companies have a 50-foot gasholder into which the gas that is to be tested is run and then supplied to the

calorimeter. These tanks are especially valuable where comparative tests of heat units, candle power and other special tests are to be made.

A calorimeter cabinet is sometimes used, and is a most excellent way of shielding from drafts and protecting the instrument from damage.

Should Gas Companies Engage in the Sale of Appliances.

[A Composite Paper prepared by Messrs. L. H. NEWBERT and H. P. PITTS, for the 21st Meeting, Pacific Coast Gas Association.]

Gas, particularly as a fuel, is to-day employed to a greater extent than ever before, yet the writers do not believe they are in error in predicting that no company engaged in the manufacture and distribution of gas is altogether satisfied with its output. Each and all are seeking new means and methods of increasing sales. The introduction, from time-to-time, of improved gas consuming appliances has been an important factor in the gas world, and has had a very beneficial effect on the business; and, as the prosperity of gas companies depends altogether upon the use of gas consuming appliances by their customers, the question of how best to increase and promote the sale of such appliances, being of the utmost importance, brings us to the subject of this paper, "Should Gas Companies Engage in the Sale of Gas Appliances."

The question was recently put to an appliance dealer in a large city, who promptly replied, "No," and gave substantially the following reasons to justify his reply: A company organized to supply gas should confine its operations to manufacture and distribution, and should co operate with dealers in the matter of the sale of appliances for both light and fuel purposes, particularly the latter. He argued that competition was the life of trade, and that if gas companies sold appliances there would be no competition, unless there should be more than one company in the field, and such is very seldom the case. He called attention to the fact that, in the city in question, the gas company does not handle appliances except for lighting, and then only to a limited extent, with the result that nearly all the retail hardware stores, many furniture stores, and some purely appliance stores, were selling appliances, each having an active selling force constantly in the field, with the result that the gas company was getting what it was properly entitled to; *i. e.*, increased gas sales, and the dealers were getting the appliance business, all of which was admitted to a certain degree. But, do all users of gas obtain thoroughly satisfactory appliances was asked? The dealer thought they did, as he called attention to the fact that he carried only well-known, reliable, makes of ranges, water heaters, etc., which he sold at what he thought a fair price; *i. e.*, a price which allowed a profit of about 33⅓ per cent., including delivery and connecting.

The writers admit that the matter of the sale of appliances is not a one-sided question, and that there is merit in the argument of the dealer quoted. True co-operation between gas companies and dealers is, in theory, ideal; but, can it be accomplished? Will the dealers, for instance, endeavor to sell a gas range yielding a profit of say, $5, whereas a coal or wood range might be sold and yield a profit of $10; again, will a dealer try to persuade a prospective purchaser to buy a gas range when a plate is desired? Some perhaps would while others would not.

One of the writers had occasion some time since to discuss with several dealers in a certain city the question of the sale of gas appliances. The gas company for several years discontinued handling appliances, but, because of the unsatisfactory increase in gas sales, had announced that, at the expiration of 3 months, it would re-engage in the sale of appliances. The dealers protested, claiming they had actively pushed the sale of gas appliances and had co-operated with the company in every possible way, and, if the company should re-engage in the appliance business, they would suffer considerable loss. Their attention was called to the fact that the gas company had during the previous year, turned over, as the result of convasses made, more than 300 prospects for ranges and water heaters, and that only about 65 sales had resulted, which was considered a very poor showing, and did not indicate active work or hearty co-operation on the part of the dealers. The gas company resumed the sale of appliances, and, for the year ending June 30th, 1912, sold 626 appliances. True, they had to carry a stock and maintain a selling force, but the results we believe fully justified the conclusion that the dealers could not be relied upon exclusively to actively push the sale of gas appliances.

Gas companies want to sell gas and also to increase their annual sales, therefore, should they not give the most serious consideration to the introduction of gas consuming appliances on their distributing system, and are they not almost justified, not only in installing without charge, but in addition thereto, furnishing appliances of certain types free? Would not the increase in the use of appliances justify such a course? We believe the question worthy of consideration. Take, for instance, a hotel range costing, installed, in the neighborhood of $200; $30 per month would be a conservative estimate of the consumption of gas by this appliance, or an annual return of $360. Would not this be considered good business? Yet how many gas companies provide appliances free? And what is true in the case of the hotel range is equally true of other appliances, particularly in the industrial classes, and this brings us to another phase of the question which is entitled to more than passing notice.

The introduction of industrial appliances, which is to-day attracting the attention of every gas company, has opened a new field for the sale of gas, especially on the Pacific Coast. How many appliance dealers are giving attention to this feature of the gas business? In fact, how many are qualified to do so? None, we venture to say, in 9 cities out of 10. This being the case, is it not absolutely necessary, and does not good business procedure require, that gas companies handle industrial appliances; and, if so, why not all kinds of appliances?

The policy of the gas company should be that it is not only selling the commodity known as "gas", but that it selling "service." The mere matter of an exchange of money for a certain number of cubic feet of gas, which the consumer may have used, is not the only item of consideration in the operation of the business deparment of the gas company. What it wants to deliver is not only the raw material, but the finished product, and this finished product may be summed in one word—"service." So that, to be consistent with itself and with the consumer, it would show courtesy and truth in taking the order, promptness and dispatch in delivery, cleanliness and speed in making connections, and prompt attention in the maintenance of the appliance. And right here in the last clause is the keynote of "service;" and how, may we ask, is this service to be rendered, if the gas company is not in a position to furnish each and every item which goes to make up the "service?"

Leaving out of consideration all questions of policy in the matter of co-operation with dealers, in order to secure their goodwill, is it not but fair on the part of the gas companies in dealing with their consumers to furnish them with appliances at a very reasonable figure, if not at cost, or even less than cost? Is not the consumer entitled to this consideration? Is it not a factor in the business to which gas companies should give more than passing notice? What more can gas companies do, in addition to furnishing good gas, than to provide their consumers with the opportunity of obtaining good, reliable appliances—appliances that will give proper service and materially aid the company in furnishing consumers to what they are entitled, namely, "perfect service?"

Public service corporations are, to-day more than ever, endeavoring to retain the goodwill of the general public, spending time and much money to accomplish this end. Will not the supplying of appliances on liberal terms, more liberal than the general store dealer can afford to offer, and at prices which the dealer cannot approach, do much to bring about that condition of affairs so much desired—absolute confidence between gas companies and their consumers?

Dealers may protect, but they stand, so to speak, on the shifting sands. The ebb-and-flow of the tide will wear away the foundation, and the time will come when they will concede to gas companies the undisputed right to engage in the sale of gas appliances, a business which rightfully and properly belongs to gas companies if they are to render to their consumers the service to which they are entitled. A gas company handling appliances puts itself in the position of protector to the consumer as well as of itself. In order to substantiate the contention that they should deal in appliances, the following reasons are given:

1. Having sufficient capital to properly equip an appliance store, to offer liberal terms and sell on a close margin, giving the consumer benefits impossible to be obtained from the small dealer.

2. The gas company can well afford to stand back of, and maintain, appliances sold, keeping appliances in first-class shape and assuring a constant revenue from satisfied customers.

3. By selling only appliances of high efficiency, complaints will be minimized, and better satisfied customers guaranteed.

4. They will be in a position to classify appliances and force all dealers to handle good appliances and sell at consistent prices.

5. It creates a closer relation between the company and the customer, besides demonstrating to the general public that the gas company has confidence in its products and appliances.

6. Affords an opportunity of educating employees in the possibilities of gas as a fuel, developing good appliance salesmen, and perfecting the organization.

7. For economic reasons. Why the necessity of a consumer making a contract for gas in one place and then going to an entirely different place to purchase an appliance which is useless without the manufactured product? It is only a simple process of arithmetic to prove that "service" can be handled cheaper under one head than two.

8. Last, but not least; for strictly business reasons in the way of increasing the daily output. An appliance store properly operated by the gas company should certainly maintain itself and pay interest on the investment. When they are showing increased sales of high-class appliances and an increase in gas output each month, then they have an almost perfect organization. An organization to show a constant increase in business must work in harmony and with a constant aim in view.

Calorific Value of Oil Gas.

[Prepared by Mr. F. S. Wade, for the Twentieth Meeting, Pacific Coast Gas Association.]

No one can deny, who has followed the trend of the gas industry for the past few years, that calorific value is now the proper standard by which gas should be valued. The reasons showing why this is true were too ably represented to this Association last year, by Mr. E. C. Jones, to need any further comment. The writer can only add that he hopes every member here will re-read Mr. Jones' paper, going forth armed with its arguments to do battle with the barbarous yet persistent candle power standard.

As the heating value of gas becomes more firmly established as a standard, the correct determination of this value becomes more vital. The testing of gas by a calorimeter has been brought to a high state of exactness, largely through the American Gas Institute co-operating with the U. S. Bureau of Standards. There is no question that a calorimeter of approved make, installed and operated according to the directions of the Institute, furnishes the most accurate and satisfactory method for determining the heating value of commercial gases. The use of such a calorimeter is, however, unfortunately limited by the following conditions: The apparatus is costly, a complete outfit requiring an outlay of about $250; it is too cumbersome and fragile to be readily portable; it must be used in a room free from drafts, and where a large supply of water can be had at an even pressure and room temperature.

Sometime ago the writer of this paper was confronted with the problem of controlling the quality of gas sent out by 4 widely scattered plants, supplying 10 even more widely scattered towns. Ordinances of one kind or another regulate the quality of gas in most of the towns, and, aside from that, it is the writer's firm opinion that satisfactory gas service can only be given where reasonably high and (even more important) moderately constant gas quality is maintained.

It was out of the question to install a complete calorimeter at each of the plants or cities involved, so other means were sought. The first idea entertained was to set up a calorimeter at some central point and bring samples thereto large enough to permit calorimeter tests. As a means of taking such tests a rubber bag was first tried. It is pretty generally understood that rubber will absorb portions of illuminating gas, and permit the diffusion of air through the walls of the container. Nevertheless, the following experiment was performed to determine just how serious the error was, and if it could be corrected. A 16-inch main stopper-bag was filled with gas, emptied until flat, refilled and tested.

Material.	B.T.U. by Calorimeter.
Original gas from pipes	613
Gas from bag 10 minutes after filling	592
Gas from bag 1 hour 30 minutes	562
Gas from bag 18 hours	559

It is hardly necessary to say that the error indicated by these figures is too great to admit of correction, so we may state that a rubber bag is utterly worthless as a means of sampling illuminating gas. Samples were next taken by displacing water in a 5-gallon bottle, which was found inadequate in size and the method generally unsatisfactory.

A 30-gallon water tank was equipped with an exhaust and condenser pump which would draw gas from a line and discharge it into the tank, where it was finally compressed to 20 pounds the square inch. The work of displacing the gas or air already in the tank proved very tedious and the tank itself was cumbersome. The results obtained by this method were accurate, however, and it is the only one to be recommended for taking a sample large enough to make an actual calorimeter test. Time and labor must be no serious object where this method is adopted. Reluctantly the writer turned to volumetric gas analysis as a possible solution of his problem; reluctantly, because he had for years been skeptical as to the real utility of gas analysis performed over water and upon samples taken in the usual glass tubes. That his fears were ill-founded is proved by what followed:

Samples of gas were taken in the usual form of tube having a stopcock at each end and a capacity of about 250 cubic centimeters. After some experiment, vaseline was adopted as a lubricant, it being obtainable anywhere and of constant quality. The joint made, when it is used, is perfectly tight to moderate pressure differences. Fresh gas from the main was allowed to blow through the tube for 2 minutes when the outside cock was closed followed by the inside one. The cocks were fastened tight by bits of adhesive tape.

Samples taken in this manner were sent to the laboratory and transferred to the gas analysis apparatus by displacement with distilled water. Care was used to exclude air from all connections, either by filling with water or by purging with the gas itself.

The effect of water upon gas samples was tested as follows: Simultaneous samples were taken in 2 dry tubes; one remained dry while the second was ½ filled with fresh distilled water, shaken up and allowed to stand 18 hours with the broad surface of the water exposed to the gas.

Original Gas from Pipes 603 *B.T.U. by Calorimeter.*

	Sample Dry Tube.	Tube with Water.
Carbon dioxide	2.4	1.4
Illuminants	3.5	3.2
Oxygen	0.4	0.6
Carbon monoxide	10 2	10.0
Hydrogen	52.7	52.6
Methane	29.0	29.5
Difference	1.8	2.7
	100.0	100.0
B.T.U. calculated by constants to follow	597	595

It will be seen from these figures that the loss in calculated heating value, on account of exposure to water, is not serious, as the only material change is in the carbon dioxide which has no heat value. This change, however, suggests the possibility of serious error in the analysis itself on account of carbon dioxide, formed by the explosion of methane, being absorbed by water in the burette. This error is obviated by making a number of blank explosions in the burette and not changing the water after it has thus become saturated with carbon dioxide. It is very important that the water in the burette be not alkaline.

The effect of long standing upon samples was tested as follows: Simultaneous samples were taken in 2 tubes; 1 was analyzed immediately, the other stood 23 days.

Original Gas 590 *B.T.U. by Calorimeter.*

	Immediate Sample.	After 23 days.
Carbon dioxide	0.8	0.6
Illuminants	2.7	2.8
Oxygen	0.4	0.2
Carbon monoxide	4.9	5.0
Hydrogen	58.8	60.4
Methane	29.8	29.4
Difference	2.6	1.6
	100.0	100.0
B.T.U. calculated	590.0	593.0

The slight change shown indicates nothing more than experimental error; so we may conclude that samples taken in this manner may be kept with perfect safety for 3 weeks without being analyzed. For the analysis a slightly modified Elliott apparatus was selected as

(*Continued on page* 282.)

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NEW YORK, MONDAY, OCTOBER 28, 1912.

BRIEFLY TOLD.

THE CLOSING DAY, ATLANTIC CITY MEETING, AMERICAN GAS INSTITUTE.—Continuing our account of the Atlantic City meeting of the American Gas Institute, which was told by us last week, up to the concluding day (the 18th inst.), it may be written that the glorious weather vouchsafed the delegates during the two preceding days was again in evidence on Friday. In fact, it was as fair a specimen of Indian summertime as ever came to the lot of anyone to enjoy. The session was convened promptly at 10. The first thing to be considered was the presentation by the President of the names of Committeemen who are to act in conjunction with the Pacific Coast Gas Association in respect of the proposed International Congress of gas men, to be held in San Francisco in the fall of 1915. The gentlemen named were: Walter R. Addicks (Chairman), John A. Britton, Walton Clark, R. M. Searle, C. L. Holman, W. A. Wood and George G. Ramsdell—it is proposed that the latter shall act as Secretary. Next came the report of Committee on President's Address, which was handed in by Mr. Walton Clark. The Committee unhesitatingly indorsed President Copley's recommendations in respect of devising ways and means for maintaining the work of the Institute on a broad scale. The report also directed that a Committee of five (to be appointed by the President-elect) be formed, with instructions to devise a scheme or plan under which the special work of the Association would be insured by proper financial arranging. The report of the Committee was undeniably pronounced in its expression that the technical side of the Institute work was pretty near to the correct line at present; that the fly-in-the-ointment, small though it was, was in the financial part of the conserving. The first paper considered was that by Mr. A. S. Miller (the taking-up thereof having been put over from Wednesday morning) on "Public Service Commissions." Mr. O. B. Evans' paper on the "Heat Balance of a Carbureted Water Gas Set" was next taken up. The chapters of this paper constitute the narrative of what really is an original study in water gas development. The paper by Mr. E. C. Uhlig, on "The Analysis of Water Gas Purification Material," was another good chapter in supporting evidence that the Committee on President's Address was quite right in declaring that the technical side or phase of the Institute was all right. The concluding number was a well-compiled report, from the Committee on Allowed Strains in Gasholder Designs, of which Mr. V. L. Elbert was Chairman. This was also a positive reminder that the technical men were in direct evidence. Then came the usual votes of thanks, with fitting speech, and the reunion was at an end.

AMBASSADOR JONES' ACKNOWLEDGMENTS.—The mission with which Mr. E. C. Jones, of San Francisco, was charged by his fellows of the Pacific Coast Gas Association and the gas men of the Coast generally, which was to gain the assent of the American Gas Institute to a proposition to hold its annual meeting in San Francisco in 1915, having been satisfactorily accomplished, he takes this method of thanking all those who helped to gain the desired end:

HOTEL MANHATTAN,
N. Y. City, Oct. 21, 1912.

Dear JOURNAL: Through your columns I want to express my gratitude to the members of the American Gas Institute for the many courtesies extended to me during the recent meeting of that body in Atlantic City, N. J., and, on behalf of the Pacific Coast Gas Association, I thank them for their hearty co-operation in our endeavor to have an International Congress in San Francisco, in 1915.

Faithfully yours, E. C. JONES.

EDUCATIONAL WORK, NATIONAL COMMERCIAL GAS ASSOCIATION.—That the visits of Secretary Stotz, of the National Commercial Gas Association, have been resultful seems well assured through a glance over this list of companies that have already formed Classes in accordance with the tentative plans heretofore printed by us:

Company.	Leader.
New Haven (Conn.) Gas Light	Mr. A. R. Burr.
Hartford City (Conn.) Gas Light	Mr. W. S. Farrow.
Haverhill (Mass.) Gas Light	Mr. F. M. Roberts.
Montreal (Canada) Light, Heat and Power	Mr. J. B. Johnson.

With these as a nucleus the Secretary also interviewed the Managers of the Companies in Rochester, N. Y.; Chicago, Ills.; Milwaukee, Wis.; Detroit, Mich., and Toronto, Canada, from all of whom he received assurances that the heads were in practical sympathy with the proposition. The American Light and Traction Company has taken out Company Membership for each of its 11 constituent concerns, and a number of Classes will undoubtedly be formed in this group. Classes were formed, early last month, in each of the seven divisions of the Public Service Gas Company, of New Jersey; the Brooklyn (N. Y.) Union Gas Company; the Brooklyn Borough (N. Y.) Gas Company, and the Savannah (Ga.) Gas Company. At the time of writing, through the medium of despatches to hand, the total Class enrollment is thus shown: Part I., 100; Part II., 225. So it will be known that the National Commercial Gas Association is actively endeavoring to cause its work to become effective and lasting in showing the way to the younger ones who have elected to engage themselves as workers in the artificial lighting field.

OCTOBER MEETING OF THE PROGRESS CLUB.—The October meeting of the Progress Club, Brooklyn (N. Y.) Union Gas Company, was held in the rooms of the Club, 130 Atlantic avenue, the evening of the 10th inst. The attendance was large and the interest thereof was manifest. Mr. Wm. Ambler, in charge of the New Business division of the Company, was the principal speaker. His theme was "Salesmanship," and his communication thereon was of the commonsense type, that appealed with direct forcibility to his hearers. The Club makes good advance, and of a verity it has vastly more than warranted its forming through the good work already accomplished by it, promoting a spirit of comradeship of the right sort amongst the Company's men.

HOW THE THIRTIETH ANNIVERSARY OF MR. H. L. DOHERTY'S ACTIVITY IN THE GAS BUSINESS WAS OBSERVED.—When the heads of departments of Henry L. Doherty & Company, and of the Doherty Operating Company, met for their regular weekly dinner and business discussion last Monday at "Fraunce's Tavern," Mr. Doherty was much surprised to find that something special was in the air; but it was only when Mr. H. H. Scott was appointed Chairman that Mr. Doherty was informed the regular course of business of the evening's meeting would be devoted to the celebration of this Thirtieth Anniversary of his employment as an office boy by the Columbus (O.) Gas Light Company. Mr. Scott first called on Mr. F. W. Frueauff, who recited several of the business and personal incidents of the early days of his association with Mr. Doherty in the reorganization of the Denver (Col.) Gas and Electric Light Company. Mr. C. T. Brown then took up Mr. Doherty's career as incident to that of Henry L. Doherty & Company, and in these two speeches the present accomplishments, brought out of comparatively small beginnings, were well stated

Mr. George Williams was then adjured to descant upon the personal side of the equation, and those who know this enthusiastic business manager can well imagine how he handled the past. Mr. W. H. Gardiner next responded to his call in the shape of a speech respecting the future, in which, as statistician for the Doherty organization, he showed conclusively that figures, plus imagination, can lead an organization anywhere it really wants to go. Mr. Doherty's responding address was said by many present, who surely know, to be the most inspiring one they ever heard him make, combining, as it did, his broad, intellectual views, on the past, present and future of public service business, allied to a warm personal touch and deep personal interest concerning all those identified with his organization.

OBITUARY NOTE: MR. SYLVESTER WATTS.—Last week we reported the death of Mr. Sylvester Watts, whose passing away was marked by virtually no prior indication that death was at hand. The night of the 13th inst. his valet had packed his travelling cases, in his living quarters in the Athens Hotel, Columbia, Mo., preparatory to a start on the 14th for St. Louis, Mo., where he proposed visiting his daughter, Mrs. A. R. Smyth. Always noted for punctuality, his non-appearance at the breakfast table at the usual hour caused comment, and when the time had inordinately lengthened a porter was sent to awaken him, the thought naturally being that he had overslept. The porter shortly returned, with the declaration that Mr. Watts was dead in bed. Sylvester Watts was born in St. Louis, Mo., November 24, 1837, and the record of his early life is rather obscure. However, early in the '70's there is record of his having engaged in engineering work with the St. Louis firm of L. M. Rumsey & Co., and later on he became prominent in connection with the construction and operation, first of municipal water works systems, and later on in connection with gas works construction and operation, doing the work on his own account. Notable along these lines was his building the plant at El Paso, Tex., which eventually proved a very profitable operation for him when after some years he disposed of his interest therein. If we mistake not, he also built the works at Columbia, Mo., and these were owned by him up to his death. The plant afforded him a satisfactory means of keeping in active touch with the industry; and he was very zealous in its maintenance. It was there, if we are not largely at fault, that he, in conjunction with Mr. Frederick Egner (who had been his intimate for close to a double-score of years) experimented with inclined retorts, and later on with the vertical system. The growth of Columbia, though, especially in the last 10 years, necessitated a plant of considerable dimensions, and the Western Gas Construction Company had just completed (we think it was first fired-np towards the close of the final week of last month) for him there a water gas auxiliary of modern type. Mr. Watts was a keen business man along other lines, and he amassed a large fortune in connection with real estate purchases in many localities, but mainly in St. Louis and Kansas City. He was one of the founders of the Western Gas Association, and in his early connection therewith was a positively zealous member. He was prominent in its committee work, was liberal in his subscriptions to it at times when something out-of-the-ordinary was arranging for its annual meetings. That he was up-to-date in his ideas is well shown when it is noted that, at the Western's eleventh annual (Chicago, May, 1888), he was a member of the Committee then appointed (the others were Frederick Egner, Chairman, and Ed. J. King) to determine the advisability of forming an "American Gas Institute." He subsequently resigned from the Association (about 1892) and took no active part in such work thereafter. He was also President of the Watts Engineering Company, of St. Louis.

His immediate survivors, are his daughter (Mrs. A. R. Smyth, of St. Louis), and a nephew, Mr. Joseph R. Watts. He was a man of pronounced convictions, but this peculiarity did not detract from his personality, which was of the type that experiences pleasure in performing good deeds and charitable works, ever with the way of concealing his identity as far as possible in such ministrations.

BOOK REVIEWS.

"*Primer of Scientific Management.*"—This is an appeal for much greater attention from managers to investigate both the human and the economic phases of their workmen's labor, by Mr. Frank B. Silbreth, with an introduction by Mr. Louis D. Brandeis. Published by D. Van Nostrand Company. Price $1. The author is well-known as a contributor on the subject of scientific management, and his convincing style is well displayed in this volume which answers many of the questions that appear to make the application of a new system impracticable in any particular case.

Publications.

[All Publications, Catalogues, etc., mentioned below, are kept in our office for the convenience of our patrons.]

"*Public Service Commissions.*"—The first section of the report of the Department on "Regulation of Utilities of the National Civic Federation," is entitled "Organization of Railroad and Public Utility Commissions." It contains detailed descriptions of 44 Commissions. Mr. Emerson McMillin is Chairman of the Department, and Mr. John H. Gray, Director of Investigation.

"*Factory Lighting.*"—The "Shop efficiency" should be high in those places and parts illustrated in the attractive booklet yclept, "In the factory after dark," from the "press" of The General Gas Light Company for general distribution by gas companies.

"*Buckets and Tubs.*—Another of the series of handsome catalogues from the Brown-Hoisting Machinery Company, which describes and illustrates buckets and tubs. One of the 8-ton buckets in use at the Astoria plant of the Consolidated Gas Company, New York, is among those shown; and shown well.

"*Rapid Transit, New York City.*"—The Public Service Commission, First New York District, has issued a short historical review, entitled the "Dual System of Rapid Transit in New York City." Copies can be obtained upon request, and the request is certainly worthy of the making.

"*Home Lighting.*"—In a terse statement of the progress that is being made in the field of illumination, Mr. Preston S. Millar calls attention in a paper on "Efficacy in Illumination," published in the *Electrical World*, to the much broader view as to what constitutes good lighting by both engineers and architects. In conclusion Mr. Millar states that "Two classes of lighting installations have not been materially improved. These are residences and buildings having architectural features requiring appropriate illumination. The gas seller is now well-equipped to go after old as well as new lighting at home or abroad, with the aid of the handsome fixtures and attractive as well as efficient lamps that are now ready for the campaign of 1912-13.

"*Gas Ovens.*"—National Commercial Gas Association Handbook Sheets, A 1-2-3. These cover the "Portable Reel Gas Oven," manufactured by the Crandall-Pettee Company.

"*Testing.*"—"Scientific Testing Applied to Business," is the title of a little pamphlet issued by the Electrical Testing Laboratories, New York City. The work done by this concern covers practically every phase of photometric testing, and also much general work, such as analysis of coal and ash, tests of paper, cement, concrete, etc.

"*Water Heaters, Primitive and Modern.*"—"A hole in the ground was the primitive water heater," says the Pittsburgh Water Heater Company, in Pamphlet 491. The evolution from this crude planning to that of to day is told in a readable manner.

"*Sulphur Analysis.*—The Bureau of Mines has issued a Bulletin on "Methods of Determining the Sulphur Content of Fuels, Especially Petroleum Products." Prepared by Messrs. I. C. Allen and I. W. Robertson.

"*Rate Research.*"—The first printed number of the weekly abstracts of rates, decisions, orders, etc., issued by the Rate Research Committee of the National Electric Light Association, is dated Oct. 2, 1912. It starts the second volume of that publication, and contains an abstract of the Des Moines gas case.

"*Efficiency Society Bulletin.*"—The Efficiency Society, with headquarters in New York city, has issued its first bulletin. The Society has about 1,000 members, including many men of considerable prominence in public utility as well as other corporations.

"*Accounting.*"—The October number of the National Commercial Gas Association's "Bulletin" contains an article on "Accounting," by Mr. Ormsby F. Potter. It carries a very complete list of books on accounting.

"*Rochester's Record Send-Out.*"—The October issue of "Gas and Electric News," published by the Rochester (N. Y.) Railway and Light Company, contains an article entitled "Record in Gas Consumption." On September 11th the total output in 4 hours was 5 millions cubic feet. Between the hours of 7 A.M. and 7 P.M. the figures showed a totaling of 3,200,000 cubic feet. The former represents an increase of 18 per cent. over the corresponding date last year.

(*Continued from page 279.*)

meeting the requirements in speed and simplicity. The general method of procedure was the same as recommended in text books describing the apparatus. Enough pure bromine—not bromine water—was used to fill the absorption tube with dark fumes. Oxygen (90 per cent.) was used for the explosion, in the proportion of 1 of residue to 3 of oxygen. Repeated experiments with air, in proportions varying from 5 to 9 of air to 1 of residue, failed to give complete combustion. In no case was the full amount of methane shown where air was used for the explosion. Great care must be used to obtain complete absorption of carbon monoxide, as any not removed appears later as methane, making the analysis worthless.

We now come to the all-important question of the constants to be used in calculating the heating value of gas from its analysis.

In April, 1893, the "Journal of Analytical and Applied Chemistry" published a most excellent and authoritative paper on "Fuel Value of Gases," by Mr. Henry L. Payne. This paper was later reprinted in Stillman's "Engineering Chemistry" and widely quoted elsewhere. It gives the following values for the more common gases, per cubic foot, at 32° F. and 30 ins. mercury:

Gases.	Value.
Hydrogen	345.4
Carbon monoxide	341.2
Methane	1,065
Illuminants	2,000
Ethane	1,861
Propylene	2,657
Butylene	3,441
Benzene	4,012

As is well known, 32° F. is never used as a standard in commercial gas work; 60° F. being the temperature universally assumed in such work, and particularly in reporting the heating value of gas determined by a calorimeter. Notwithstanding this fact, the figures given above are largely used in calculating the heating value of gas from analysis. A comparison of figures so obtained with the results of calorimeter test corrected to 60° is, of course, meaningless.

When the above figures are corrected to 60° F., they become, in round numbers:

Hydrogen	323
Carbon monoxide	319
Methane	996
Illuminants	1,871
Ethane	1,741
Propylene	2,486
Butylene	3,227
Benzene	3,753

Now, let us see what results are obtained if we sample and analyze oil gas according to the method outlined above, calculate the heating value, and compare it with calorimeter tests. The following samples were taken from pipes simultaneously with tests made on a Junkers' calorimeter:

Carbon dioxide	2.2	2.2	0.4
Illuminants	3.4	3.8	4.2
Oxygen	0.4	0.4	0.5
Carbon monoxide	10.6	10.2	4.1
Hydrogen	50.2	49.1	52.6
Methane	30.9	32.1	35.4
Difference	2.3	2.2	2.8
	100.0	100.0	100.0
B.T.U. by calorimeter	608.0	623.0	660.0
B.T.U. calculated	567.0	582.0	613.0

The value obtained by these constants is almost exactly 7 per cent. lower than that shown by calorimeter. Two courses are open to us: To use the constants stated and arbitrarily increase the figure obtained by them; or to change the constants—paradoxical as that may seem. The latter course was deemed advisable.

Hydrogen and carbon monoxide are gases of definite composition, the heating values of which have been well established. There is no excuse, therefore, to alter their constants. The illuminants, however, are made up of an undetermined mixture of hydrocarbons varying in heating value from 1,700 to 4,000 B.T.U. per cubic foot. We may then change the value assigned to them to meet conditions. Methane, while a definite gas, is determined indirectly and by a method subject to some error. Its value has, therefore, been somewhat increased. After many experiments on various oil gases the following constants were adopted:

Illuminants	2,300
Hydrogen	325
Carbon monoxide	320
Methane	1,080

The series of tests given below show the comparative results obtained when using the above constants and a calorimeter. All of the samples are straight oil gases. Those bearing the same letter are made by the same plant and process, but at different times. Numbers 10 and 11 were made in the laboratory in an iron retort without the use of steam. They are given for their scientific interest only.

	A-1.	A-2.	A-3	A-4.	B-5.	B-6	B-7.	B-8.	C-9.	D-10.	D-11.
Carbon dioxide..	2.2	2.2	1.7	2.2	0.8	0.2	0.4	0.1	0.4	0.2	0.0
Illuminants....	3.6	3.4	3.3	3.8	2.7	2.5	4.2	4.5	2.7	14.2	18.4
Oxygen....	0.4	0.4	0.3	0.4	0.4	0.3	0.5	0.5	0.3	0.8	0.8
Carbon monoxide.	0.8	10.6	10.0	10.2	4.9	5.2	4.1	3.9	5.7	1.3	1.2
Hydrogen.	50.8	50.2	49.9	49.1	58.8	60.0	52.6	48.4	63.2	42.1	36.0
Methane...	30.2	30.9	31.8	32.1	29.8	30.6	35.4	40.3	27.7	41.4	43.1
Difference.	3.0	2.3	3.0	2.2	2.6	1.2	2.8	2.3	0.0	0.0	0.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
B.T.U. calorim'r.	593	608	609	623	590	609	660	710	590	910	1,025
B.T.U. calculated..	605	609	613	626	591	600	663	708	585	915	1,010

The agreement shown here is unquestionably satisfactory and it is recommended that the constants given be used where oil gases are sampled and analyzed by a method similar to the one related. If lower constants are used a certain injustice will be done the gas.

[Communicated.]

The Public Service Gas Company's Office and Display Rooms, Jersey City, N. J.

The New Jersey Public Service Gas Company's Building, Sip avenue, Jersey City, N. J., was formerly opened to the public, Monday, October 7th, and continued open for the entire week ended Saturday the 12th, from 10 A.M. to 9 P.M. daily. The interest shown in the beautiful and spacious building, as well as in the demonstrations conducted therein during this period, can be comprehended when it is known that 10,000 visitors were recorded during the week. The structure is certainly one of the finest office buildings in New Jersey, and the Public Service Company is to be congratulated on the general outlay and arrangement of its offices, which prove beyond a doubt it was erected from plans adopted where the welfare of its employees, as well as of its consumers, was the important consideration.

Approaching the building, down Sip avenue, one is immediately impressed with the fact, from the many windows throughout the building, that excellent lighting and ventilating conditions exist in the interior. On closer approach the clever arrangement of the show windows is apparent. These are tastefully and attractively dressed so that attention is arrested by each in turn before the main entrance is reached.

Upon entering the building attention is drawn to the cashier's department, by its elalorate, polished oak counters end bronze cage, behind which the enormous steel lined vault is discernible. Going to the right the gas and electric order desks are a pleasing sight, spacious oak counters and illumined signs denoting their location. Reversing at this point and walking to the other end of the floor, the display of gas and electric appliances distributed about the floor attracts one. Resting in their elaborate showcases, stands and tables, all of polished oak, with which the entire building is trimmed, they are shown to the best possible advantage.

Close to the left of the entrance are two spacious passenger elevators, operated by uniformed men, and to the right of the elevator shafts is a suite of four rooms, one furnished in Mission style, with velour door hangings, and beautiful large rugs on each floor. Here a fine assortment of the newest domes, fixtures and glassware is displayed, and which attracted most of the visitors. The goods, tastefully arranged in a manner to brings out their good points, are illu-

minated with gas and electricity, setting off the many beautiful colorings of the glassware with which they are equipped.

The main floor is lighted at night by 30 inverted domes or dishes, suspended from the ceiling by chains, the installation giving the appearance of large urns. They are made of a special opal glass and are equipped, partly with inverted gas burners and partly with tungsten lamps. A feature of this installation is that gas and electric light can both be operated from the same panel board, the former being operated by magnet-valves, with push-button contact.

The general effect of this method, known as "Semi-Indirect Illumination," is most pleasing. The light is evenly distributed throughout the spacious floor, casting no shadows, and the light units being protected by the special glass panels, there is not the usual glare that accompanies ordinary large lighting unit installations, thereby saving the eyes.

In the basement is to be found the salesroom, where is shown in operation every kind of appliance for domestic use: Ranges, of every style, from the small single-oven cooker to the large cabinet styles, with their upper and lower ovens, glass doors, warming closets and canopies; and every style of hot water heaters, embracing the inexpensive circulating type, the instantaneous heaters of larger capacity, which supply hot water through a mere turn of the faucet, and the large capacity, hot water storage systems for every use.

There is contained in the basement a complete electric kitchen in operation, including range, water heater, toaster, percolator, and every conceivable necessity to the housewife, where over 1,500 crullers were cooked and passed around to the visitors who expressed great praise over the daintiness of appearance and excellent flavor.

Next to the electric kitchen is an all gas kitchen example, which comprises the gas range, hot water heater, gas steam radiator, etc. Here cakes were baked each day of Display Week, and frequently sampled by the visitors. In connection with the "All Gas Kitchen," demonstrations were given of bread toasters, waffle irons and cake griddles, the visitors being judges of the deliciousness of the articles cooked on these appliances. With something like 600 waffles and griddle cakes to sample, and also about 15 or 20 loaves of toasted bread, a satisfactory verdict was rendered by the many sales of the appliances shown.

Next to the kitchen was a completely equipped laundry consisting of an 8-gallon, instantaneous hot water heater, an electric clothes washer, a gas clothes dryer, gas mangles operated by hand and electricity, and gas irons, all of which were demonstrated to vast numbers of interested visitors.

A hotel gas kitchen (also in the basement) consists of a large hotel range, steam tables, plate warmers, broilers, vegetable warmers, coffee urns, milk warmers, stock kettles, etc., and the excellent coffee brewed in this kitchen was passed among the visitors.

Next came the large rotary bake oven, having a capacity of 250 two-pound loaves at each baking, in charge of a prominent Jersey City baker, who baked and disposed of 1,000 loaves of bread and 4,000 rolls, large numbers of which were sold, the remainder being given out among the visitors.

The Welsbach Company had a prettily arranged booth, next in order, fitted up with a variety of its lamps. The process of mantle manufacture was demonstrated, showing the construction of the materials used and the chemicals employed in their treatment, from the start to the finished article, even showing the test to which the mantles are put, on what is known as a "bumping machine," before shipment from the factory. This demonstration was well patronized night and day, as was its next door neighbor, the gas arc lamp booth, showing various styles of arc lamps in operation.

The next display of interest in the basement was an unusually large variety of industrial appliances and gas engines, all connected-up in a room set apart for the purpose, and which by-the-way is a permanent exhibition. The numerous appliances in operation were decided attractions, and gave the visitors an insight into the varied uses to which gas can be put, assisted by inventive genius.

There were soldering furnaces, melting pots, japanning ovens, china kilns, forges, rivet heaters, gas steam boilers, smoke houses, blowers, etc.: also burners of every size, adaptable to any heating operation, whether small or large, and these demonstrations were made doubly interesting from the fact that representatives were in attendance explaining the uses of the various appliances.

About 3,000 special invitations were sent out to manufacturers of all kinds to witness these demonstrations, and many who responded were amazed at the wonderful performances and accomplishments of the appliances. Many prospects for future appliance sales were, therefore, gathered, and the same may be said of domestic appliances, where the actual weekly sales alone were close to $3,000. This figure is large when it is considered that salesmen were instructed not to try to push sales, since the public were invited to be entertained and not annoyed.

Conspicuous throughout the exhibition were generous piles of printed matter, distributed at the most advantageous points, and passed out to the visitors by uniformed boys. Close to 20,000 circulars and booklets were distributed during the week, in both gas and electric literature.

In the basement, towards the Sip avenue side, was a fine display of small electric appliances for table cooking, which incited many exclamations of wonder and approval at their accomplishings. The coffee percolator, table range, toaster, curling iron heater, electric iron, waffle cooker, water kettle, heating pad, etc., were particularly interesting to the ladies.

A vacuum cleaner was operated a little further on, demonstrating its ability to pick up every particle of dirt and dust from a rug placed for that purpose. Next to it was an electric player piano, which automatically rendered popular music, adding an air of enjoyment to the exhibition, that was shared by all who attended.

On a large platform near this section were electric manufacturing devices, such as coffee grinders, sausage machines, etc., as well as motors of every description, from the little sewing machine motor to the large horse-power capacity motors, capable of operating the largest manufactory.

Taking the elevator to the second floor, one finds the Company's offices. Here, in a well appointed office, will be found Mr. F. W. Schmidt, the Division Agent, whose leadership has greatly increased the Public Service business in Hudson County, with the able assistance of Mr. E. G. Kent, Assistant Agent, and Mr. E. Mercer, Chief Clerk.

On the same floor, and adjoining these offices, will be found the stenographer's rooms, advertising department, demonstrator's room, special collection department, adjustment department, bookkeeping, and clerical departments, all most comfortably situated in spacious and well-lighted offices, with excellent ventilation and comfortably furnished with an eye to both beauty and comfort.

On this floor is a spacious vault, equipped with steel shelving and linings for books and records. There is more than ample storage room in the three vaults the building holds, and it seems impossible that any degree of fire could destroy the records or books they hold.

On the third floor are the collector's room, a large, airy, light apartment, the electric salesman's room, gas salesmen's room, special campaign salesmen's room, and offices for gas appliance, gas engine and special selling campaign men.

The stationery and addressograph department is quartered on this floor, where all the bills and index sheets are addressed by the newest type of machines, operated by electricity, Adjoining this department is a ladies' retiring room, fitted up neatly and comfortably, and the "loungy" wicker furniture suggests rest and quiet in the extreme.

On the fourth (and last) floor is an auditorium with a seating capacity of 300, where the Public Service Commercial Association, consisting of employees of the different districts of the Hudson Division, hold their monthly educational meetings, which are well attended and usually terminate with a first class musical and moving picture entertainment.

On this floor is a storeroom and locker room, containing a spacious sanitary locker for each employee, and a private telephone exchange switchboard, employing several operators, who are keep busy with the wires with which all departments are connected, so that each can keep in constant touch with the other, expediting matters between departments and saving hundreds of steps for the employees each day. The visitors enjoyed the privilege extended them of inspecting the entire building.

The growth of business in the Hudson Division made this elegant, new building possible, and it is safe to state that it is now equipped to continue growing in leaps-and bounds, and that this "Demonstration Week" has won many friends for the Public Service, which are the best business assets a public service corporation can have, and as Jersey City grows the Public Service will grow, not alone in business, but in the good graces of the public as well.

The Arrangements' Committee are to be congratulated on the able manner in which the demonstrations were conducted, on the men selected as guides, and any and all to whom positions were assigned. There was not the sign of a hitch at any time, and the many compli-

mentary remarks passed, as to the smooth manner in which affairs were conducted, ought to reward them for their hard work.

It would be of interest to anybody connected with a public service company to take a trip through this new building at the first opportunity, whether he be an official or a clerk, as there is something of interest on every floor, and the arrangement of the offices themselves would offer many valuable suggestions. A hearty welcome is extended by Mr. F. W. Schmidt to anybody who wishes to visit the building, and from experience I can promise any visitors that they will be shown every courtesy and consideration.

September Meeting, Boston Section, National Commercial Gas Association.

A profitable and interesting meeting of the New England Section, N. C. G. A., was held at Wesleyan Hall, Boston, Friday evening, September 27th. Mr. S. Gulbrandsen, Research Chemist for the Welsbach Company, read a paper on the subject of "The Artificial Fibre Mantle," and judging from the discussion that followed everyone present was interested. In conjunction with the paper noted, an illustrated lecture was given by Mr. Gulbrandsen on the process of making gas mantles, stereopticon views of the different workrooms of the Welsbach factory, showing the mantle in process of making from start to finish, being given. Also, arrayed in front of the speaker, were the rare materials used, and each article was explained and passed around to the members for inspection. At the conclusion of Mr. Gulbrandsen's remarks, a vote of thanks was extended to him, and the unanimous opinion of the members was that the speaker was decidedly interesting and instructive. The annual meeting and election of officers was held at Wesleyan Hall, Bromfield street, Boston, at 8 P.M. of last Friday. A large attendance was looked for at the session, for the members seem particularly desirous that the Western section of the State should be represented on the Board of Officers for the coming year. The meeting was also to be devoted to a general expression of ideas beneficial to the incoming officers. Of course, this annual meeting could not be reported in our current issue, the forms for the latter being then in process of printing.

Special English Correspondence.

COMMUNICATED BY NORTON H. HUMPHRYS.

SALISBURY, ENGLAND, October 10, 1912.

The British Commercial Gas Association.—The Era of Gas.

The event of the week is the first annual general meeting of the British Commercial Gas Association, which was held at Manchester on the 8th and 9th inst., under the guidance of Mr. Corbet Woodall, Chairman of the Gas Light and Coke Company, who has consented to occupy the position of President for the year. A more appropriate choice could not be made, in view of the work that Mr. Woodall has already done along the lines taken up by this Association. The two days programme opened with a reception at the Manchester Town Hall by the Rt. Hon. S. W. Royse, Lord Mayor of Manchester, at which words of welcome were uttered by Councillor W. May, Chairman of the Manchester Corporation Gas Committee, and by Ald. F. S. Phillips, Chairman of the Salford Corporation Gas Committee. Salford, by the way, is an important adjoining township. The usual routine business proceedings were enlivened by an invitation to luncheon, tendered by the members of the Corporation Gas Committee. A paper on the aims and objects of the Association was read by Mr. H. James Yates (managing director of Messrs. John Wright & Co., the well-known gas appliance manufacturers of Birmingham) and discussed. An annual dinner was held in the evening, at which the Mayors, Deputy Mayors and members of the Corporation of Manchester and Salford attended, and subsequently the party listened to a lecture by Prof. Vivian B. Lewes, on the hygienic aspects of gas for heating and lighting in house, school and workshop. The following forenoon was devoted to the hearing and discussion of papers. Mr. Geo. Clarey, Secretary of the Cardiff Gas Company, dealt with show rooms in relation to gas supply. Anyone who has happened to take a look round Cardiff, in the interval of waiting for a train, will not need to be assured that Mr. Clarey is able to give the results of successful experience. Mr. J. Ferguson Bell, of Derby, took up the much neglected subject of coke sales. Some gas works managers do not believe in too much exertion about sales of gas, and others who are fairly active as regards the chief product, have not much time to spare over the residuals. Mr. H. H. Creasey followed with some account of a campaign amongst the Doctors. From utterances occasionally to be met with, said to rest on the authority of emiment medical men, it would appear that they stand in need of accurate information as to the products of combustion of coal gas, and an explanation of the fact, proved over-and-over again in our large towns, that the liberal use of coal gas tends to reduce the public death rate averages, and not to increass them. After enjoying the hospitality of the members of the Salford Gas Committee, who entertained the visitors at luncheon, a lecture was given on The Science of Salesmanship, by Mr. A. F. Sheldon, founder of the Sheldon school of business building.

The Association issue a monthly Bulletin to their members, but the words on the front page "printed for private circulation only," prohibit any detail notice of the contents. Which, perhaps is not an unqualified misfortune, because if I once started on them the limits of this letter would be largely exceeded. It must therefore suffice to say that the five numbers already issued are in every way up to the mark, and competently indicate the lines taken up and occupied by this Association. I have complained sometimes of the thinness, weak humor, and music hall variety style of much of the present day advertising, and of the absence not only of truthfulness but of ordinary dignity, so it is right to say that so far I have not seen anything in the literature issued by the British Commercial Association, to which these strictures would apply. The suggestions for advertisements are of a correct and dignified character, and no one could reasonably object to them.

The sudden development with coming into evidence of this Association, which already numbers some 250 supporters, has been a matter of some surprise to that large section of the public who are not in touch with the gas industry, and therefore have no idea of the magnitude of its operations, the degree of science and skill concerned in them, the amount of capital invested, and the number of hands employed. They have suddenly become aware that the gasmen are something more than the pariahs of society, and incidentally the result will be to give to the employees of gas companies a position in public estimation that they have never held before. People who have been accustomed to talk about gas being played out, a relic of the Victorian era, and so forth, are beginning to think that there is a larger amount of vitality in it than they had supposed. Perhaps it is due to the gas man's inert modesty that the real position and importance are not more widely known, but modesty is at a discount in these days. The old saying, "the man who hesitates is lost," has been paraphrased into "the man who does not advertise is lost," and men or companies appear to be valued not so much according to their public service as by their capabilities in the advertisement line.

A sign of the times in this connection is to be found in the fact that one of our leading daily newspapers, the "Standard," in the course of a series of articles on invention and discovery, devotes a chapter to the gas era and the abolition of coal. It is remarked that combustible gas, which need not necessarily be coal gas, is already doing more for human comfort than is generally credited to it. The ordinary coal fire derives much of its value and certainly much of its claim from the flames produced by gas liberated during the process of combustion, but the efficiency of these gases in a coal fire is prejudiced either by defects in the design of the grate or the presence of other coal constituents. Reference is made to the adoption of gas power in photometrical value, but capable of producing more heat for the same price. The writer evidently accepts the theory that the light giving power of gas when consumed in the incandescent burner is more accurately indicated by the calorimetrical than by the photometrical value. The result of this change has been increased popularity of gas for heating, lighting, motive power and general purposes. Under the last named term the writer would probably have included what is really as powerful a factor in the popularity of gas as anything named in the article, and that is the use of gas for cooking. The gas fire is uncertain. For 6 months in the year it is not wanted at all, and there are spells of mild weather of uncertain duration at all times. This is particularly the case in the hill sheltered towns in the south of England and Ireland. The lighting season necessarily varies with the season of the year. But the cooking, like Tennyson's book, goes on for ever. Heat or cold, bright or dull weather, do not affect it, and it is superior to anything short of a national calamity of such magnitude as to restrict the supply of food or the means of obtaining it. Only a few days ago it was stated

that at Guildford the use of gas stoves had resulted in such a reduction in the quantity of household refuse, that coal had to be used to supply sufficient heat for the municipal dust destructor, with the result that the estimated saving of £160 on that appliance had been converted into a deficit of £825 on the years' working, equivalent to a rate of 1½d. in the pound. Guildford is not the only town that has counted on making a profit out of the imperfectly consumed fuel thrown into household dust bins and afforded an illustration of the process known as counting the chickens before they are hatched. But the alleged loss is only one side of the story. The idea of utilizing waste fuel that has been paid for at the full market price, savors of the Chinese plan of preparing roast pork. Before £1 can be saved at the dust destructor, some householder in the district has paid £2 or £3 for the fuel, and the apparent loss of £1,000 really means a saving of £2,000 or £3,000 in the shape of wasted coal paid for at the full current market price, to say nothing of the saving in labor and inconvenience. If there is no ashes for the municipal dust cart, there has been none to carry from all parts of the house to the waste receptacle in the basement. There is also a great reduction in the matter of smoke and soot poured into the atmosphere of the district, and the necessity for sweeping chimneys. But the point with which we are at the moment concerned is the effect of the gas cooker in the direction of cheapening and popularizing the use of gas. The author goes on to remark that sentiment and inertia are the only abstracts against the general adoption of gas fires and cooking appliances. The remark fits squarely as regards gas fires, but is rather late in the day in view of the example just stated, and the fact that where gas is cheap the percentage of cookers to total consumers approaches 70 or even 75. A few days since I called at a gasworks about noon, and found a booster in operation, and was told that the gasholders would supply the evening pressure efficiently but not the cooker pressure in the middle of the day. Any notice of the gas era that does not give the cooker the first place is like the play of Hamlet without the leading character. Additional evidence of the increasing use of the gas fire is to be found in a humorous complaint in another daily paper.

The writer complains that it has no fender, no place to put your feet, no hob, no top bar, no where to knock your pipe out, no need for coal scoop, tongs or poker. This is amusing reading, but much of it is far fetched, if not absolutely untrue. A fender can be used with a gas fire, as a foot warmer or for any other purpose, exactly as with a coal fire. The habit of association is such that many people prefer to retain the fender and fireirons formerly used as an ornament but there is this difference that the implements are brightly polished instead of being dirty and stained with soot and ashes. The uses of the hob are presumably for toast, hot grog, and other creature comforts, and anyone requiring these will find in any gaswork's showroom a large assortment of gas fires that meet the requirement to a much wider extent than is practicable with the coal fire. There are trivets, flat tops, etc., to say nothing of apparatus specially suited for the nursery or sick room, and having a boiling burner concealed in the top of the stove, or on a trivet at the side. The heat is clean and steady and will not crack chinaware or contaminate anything with dust or soot. The use or necessity for the top bar passes my comprehension, but I do not think its absence a serious drawback.

The use of the fireplace as an ash tray is an untidy habit that might be expected from a literary man, and one that carries its own condemnation. He has only to drop a hint in the hearing of his wife or his sweetheart, and he will get a pretty little ash bowl as a present on his next birthday. I have heard a similar objection to the effect that one cannot throw half burnt matches on the gasfire, or torn paper, not to mention another objectionable habit, and to all these the same explanation will apply. Dispensing with the tongs, poker, and scoop is in no sense a disadvantage, because the use of these tools is attended with unnecessary labor, much dust, and inconvenience, and it would be as reasonable to complain of the absence of the ash-pit and the cinder box. When once the public are educated to the advantage of fitting a gas fire to a 4-inch or 5 inch flue, with a butterfly valve or other regulator, and an efficient down draught preventer, in place of the usual device of locating it in front of a coal fire grate, and trusting to a chimney 9 by 9 or even 13½ by 9 in area, that has in fact been made extra large even for the coal in order to allow for the accumulation of soot, and reduce the necessity for sweeping the chimney to not oftener than twice a year, there will be a rush for gasfires equal to that which has been experienced for cookers.

New Methods and Appliances.

NEW CONTINUOUS CHART RECORDING PYROMETER.—The Brown Instrument Company, of Philadelphia, and its Associate Company, the Keystone Electrical Instrument Company, have brought out a new, continuous, chart-recording instrument, particularly designed for use as a pyrometer, but that can also be used for indicating volts, amperes, revolutions per minute, mechanical operations, etc., where a small current of electricity is required to operate a recording instrument.

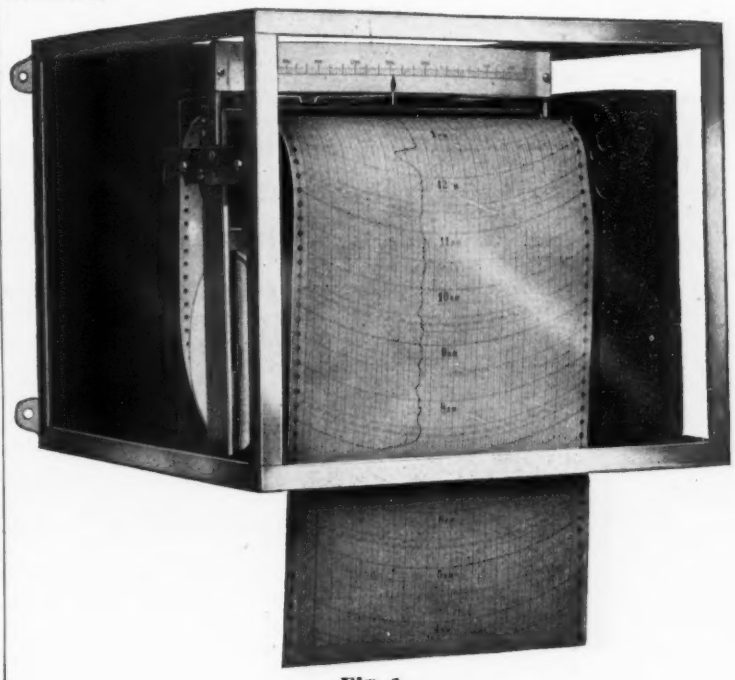
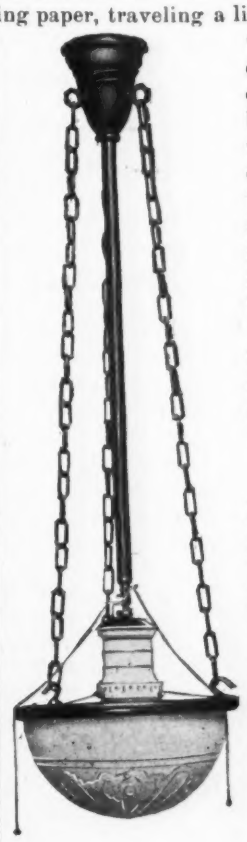


Fig. 1.

The new instrument is of the frictionless type, the pen making a single dot of ink momentarily on the paper at short intervals, every 10 seconds or every minute as desired, which dots practically form a continuous line. The instrument carries a 6 month's roll of recording paper, traveling a little over an inch an hour, thus doing away with the necessity of changing the charts daily; and for many operations the continuous chart is preferable. The record can either be torn off, as desired, every day, or once a week; or it can be allowed to roll up continuously. This new instrument is very handsome in appearance, having a plateglass case as shown in Fig. 1, and in designing the instrument it has been kept in mind that a recording instrument must be as simple and practical as possible.



Further information regarding this new type of instrument which has just been placed on the market will be freely given by the above named Companies.

SEMI-INDIRECT LIGHTING FIXTURE.—The demand for simple and attractive semi-indirect lighting fixtures being a noticeable feature in the season's trade in lighting fixtures, this specialty should prove an attractive one for the gas company. A new unit, known as "Camia," illustrated herewith, combines the results of the work of the fixture, the glass and the lamp manufacturer. The simple lines indicate a useful purpose for each of its parts, and the glass has been especially designed to show to good advantage the soft yet powerful light from the efficient and satisfactory gas lamps.

THE proprietors of the Bridgeton (N. J.) Gas Light Company have determined to construct an additional gasholder on the plot owned by it at the junction of Vine and Water streets.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 20 cents.

1,039,048. Gas Cock Lock. G. A. Glass, Newark, N. J.

1,039,270. Regenerative Gas Producing Oven. A. Gohmann, Stettin, Germany, assignor to Stettiner Chamotte-Fabrik Actien-Gesellschaft vorm. Didier, same place.

1,039,386. Gas Cock. A. W. Grove and D. F. Anderson, Chicago.

1,039,398. Process of Producing Gas. J. H. Hirt, El Paso, Tex., assignor, by mesne assignments, to Allis-Chalmers Co., Milwaukee, Wis.

1,039,465. Gas Stove Lighter. T. L. Wiese, Milwaukee, Wis., assignor of one-fourth to J. Froelich, one fourth to W. J. Sarres, and one-fourth to L. B. Lamfrom, same place.

1,039,479. Process of Generating Gas. D. D. Barnum, Worcester, Mass.

1,039,486. Package for Gas Mantles. F. V. Bowman and W. S. Hunn, New Haven, Conn.

1,039,513. Burner. G. C. Gill, Holyoke, Mass., assignor to Barlow Company, same place.

1,039,520. Regulating Nozzle for Incandescent Gas Lamps. M. Graetz, Berlin, Germany.

1,039,549. Gas Generator. C. A. Kuenzel, Buena Vista, Col.

1,039,612. Gas Igniter. O. Struller, New York.

1,039,675. Inverted Incandescent Gas Light. V. H. Slinack, Philadelphia, Pa., assignor to the Pennsylvania Globe Gas Light Co., same place.

1,039,919. Gas Water Heater. A. W. Finlayson, Detroit, Mich., assignor of one-half to T. Schunk, Toledo, O., and one-fourth to R. C. Sturgeon, Ojibwa, Canada.

1,039,942. Gas Meter. C. E. Hibberd, Westminster, London, England.

1,039,959. Gas Making Apparatus. J. M. W. Kitchen, East Orange, N. J.

1,040,019. Gas Lamp. H. Bubin, New York City.

1,040,148. Gas Producer. W. Climie, Bo'ness, Scotland.

1,040,218. Process of Purifying Crude Gas. H. Lane, Birmingham, England, assignor to Internationale Wessertoff Aktiengesellschaft, Frankfort-on-the-Main, Germany.

1,040,375. Burner for Kitchen Ranges. C. H. Miller, Cleveland, O.

1,040,376. Valve for Gas Ranges. C. H. Miller, Cleveland, O.

1,040,388. Vaporizing and Superheating Incandescent Lamp. H. Z. Nelson, Albert Lea, Minn., assignor to American Gas Machine Co., same place.

1,040,545. Gas Governor. G. A. Hyde, Lonsdale, R. I.

1,040,552. Auxiliary Burner for Gas Stoves. G. E. Lague, North Attleboro, Mass.

1,040,723. Gas Producer. F. Merian, Pittsburgh, Pa., assignor to Fortner Miller Engineering Co., same place.

1,040,937. Combination Gas Burner and Electric Gas Igniter. H. D. Grinnell, Pittsfield, Mass.

1,040,986. Gas Burner. W. B. Bastian, Chicago, Ill., assignor to W. B. Bastian Mfg. Co., Pierre, S. Dak.

Items of Interest
FROM VARIOUS LOCALITIES.

MR. GEORGE A. BALZ has been appointed General Manager of the interests of the Didier-March Company in this country, succeeding the late Mr. F. J. Mayer. This is a singularly happy naming for Mr. Balz (who is a graduate of that sterling educational body, the Stevens Institute of Technology, Hoboken, N. J.), from his position as assistant to Mr. Mayer, is conversant with every detail of the work in hand, and had Mr. Mayer's fullest confidence. The general offices of the Company have been removed from 30 Church street, New York City, to the officer of its plant, Perth Amboy, N. J.

THE Bartlet-Hayward Company will construct the new holder (to retain 6 millions cubic feet) recently ordered by the proprietors of the Rochester (N. Y.) Railway and Light Company. This vessel will be in great percentage the largest gasholder in the State outside of those owned respectively by the Consolidated Gas Company, of New York city, and the Brooklyn Union Gas Company, also in New York city.

MR. JNO. D. MARSTON, Vice-President and Treasurer of the Gas Tip and Self-Lighter Company, died very suddenly in his office, 207 Broadway, New York, the afternnon of the 27th ult. Death followed the rupture of an artery of the brain. Deceased was born August 22d, 1850, in San Francisco. His early business career was connected with the railroad industry in the western section of the State; but in 1892 he was appointed Private Secretary to Mr. E. J. Berwind, that prince of American coal factors, the duties of which position caused him to become a director in many large corporations. Amongst the directorships were these: The Uvalde Asphalt Company; the Uvalde Asphalt Paving Company; the McGiveney & Rokeby Construction Company; the Gas Tip and Self-Lighter Company, the *Maritime Register*, and others. He is survived by his widow and 3 children.

FIVE of the most prominent taxpaying citizens of Dunmore, Pa., recently addressed the following self-explanatory memorial to the officials of that t h riving settlement: We, as citizens and taxpayers of Dunmore, wish to call your attention to the fact that there are now before our Council competitive bids for lighting the streets of the Borough with gas or electricity, or both. We ask that you, as progressive citizens, alive to the best interests of the Borough, will carefully examine these bids, as printed in the newspapers and elsewhere. We believe it to be most advantageous to the Borough to award to the Hyde Park Gas Company at least a portion of the Borough's street lighting, and secure an entrance into this lighting field of a company willing and ready to bid for all street lighting. In our opinion, this arrangement would secure more light and better distribution of lights throughout our streets at a great saving in cost to the Borough. The bid of the Gas Company has already resulted in a reduction in the bid of the Electric Light Company from $72.50 a year per arc light to $50 per year, a saving of $22.50 per lamp per year, or nearly 50 per cent. of the present price. It is evident that such a reduction would not have been obtained if the Gas Company had not put in a competitive bid; and we, therefore, recommend recognition of the Gas Company's bid and would ask that each resident insist upon the desirability and advantage of competitive street lighting. Impress this on your Councilmen.

DEAN JNO. PRICE JACKSON, School of Engineering, Pennsylvania State College, reports that the enrollment of Freshmen in its engineering division this year, to October 20th, numbers 964. The total includes students of Industrial and Engineering Chemistry. The total enrollment in the University numbers 2,500. During the summer prelude Prof. J. A. Moyer, formerly of the University of Michigan, was appointed to the Chair of Mechanical Engineering; and Prof. George W. Eckhard, recently Prof. of Civil Engineering, Milliken University, has been named as Assistant Professor of Structures.

WE understand that, if the pool seeking absolute ownership in the shares of the Georgetown (D. C.) Gas Light Company is successful it will mean the closing down of the plant, the supply to be derived from the works of the Washington (D. C.) Company. This would seem a strange proposition, since the current thought around here is that the present Washington plant has about been drawn on to the limit in supplying the gaseous needs of the Capitol City.

"B. P. M.," is informed that the belongings of the Toledo (O.) Railways and Light Company form one of the corporations which are the underlying principals of the Utilities Improvement Company, that is being financed by Messrs. H. L. Doherty & Co., of New York.

MR. R. W. POLK, of the Laclede-Christy Products Company, writing under date of the 19th inst., says: "In connection with the item in yours of the 7th inst., respecting the Kenosha-Racine (Wis.) gas and electric properties, extensive betterments are to be made on the gas plant in Racine. Some of these improvements comprise an extension of the dockage system and the coal handling apparatus; a complete, new stack of benches of through 6's, with retorts 12 feet 3 inches long, the contract for which has already been placed with the Laclade-Christy Company."

MR. GLEN ANDRUS, Secretary-Manager of the San Francisco Chamber of Commerce, has acknowledged the receipt of a communication from Mr. Jno. A. Britton, Vice President and General Manager of the Pacific Coast Gas and Electric Company, which stated that the Company had agreed to the price fixed by the Board of Arbitration for the purchase of the Oak Park recreation grounds. This award was placed at $80,000. The time limit for taking title is the 11th prox.

A CORRESPONDENT in Boston sends the following, under date of the 20th, and although it is virtually a repetition of our prior mention of the change, we reproduce it here: "Mr. H. T. Keyes, who recently

resigned as Superintendent of the Leominister (Mass.) Gas Light Company, has taken a position with the St. Clair County Gas and Electric Company, of Illinois. It is understood that Mr. Keyes will take up the duties of Superintendent of Distribution and Manager of the new business departments of one of the many companies under control of the St. Clair County Company."

"B. V. B.," writing from Woonsocket, R. I., under date of the 19th inst., says: "I regret to say that Miss Grace Williams, since 1908 ledger clerk for the Woonsocket Gas Company, handed in her resignation this week. While I am not certain that she is to change her name, I nevertheless believe from certain indications that before long she will be indexed under some other letter than 'W.' However, it is my province to write, no matter what is to happen, that she took away with her from the Company's office two handsome plush covered cases. In one reposed ½ dozen solid silver spoons, in the other a handsome glass tray, and these were presented to her by the employees of the accounting and sales' divisions of the Blackstone Valley Gas and Electric Company."

WE are indebted to "W. H. C.," writing from Baltimore, Md., under date of the 19th inst.: "To celebrate the victory of the Gas and Electric White Sox team, in winning the pennant in the inter-Club Amateur Baseball League, the Athletic Association of the Consolidated Gas, Electric Light and Power Company, of Baltimore, gave a dinner at the Hotel Belvedere the night of October 14th, 1912. The guests of honor were, of course, the 12 members of the term, who had made the highly creditable record of winning 15 games, and losing only 3, in a league composed of the strongest amateur clubs in and around Baltimore. Covers were laid for 100, and the meun cards were surely apropos. The front page was topped by an excellent reproduction of a baseball diamond layout accompanied by appropriate text as to the center and bottom; the second page was fully occupied by photographs of the 'successful 12,' the third page carried the layout of the dishes' content—appetizing there assuredly were—together with an intimation that Mr. W. J. Casey was Toastmaster—and a 'beaut' he certainly proved; the last page carried a truthful photo of Mr. W. H. Cassell, the clever Manager of the Sox; also, a complete record of the games won and lost. Among those who responded to the toasts (and roasts) were: Mr. Chas. M. Cohn, the respected Vice-President of the Company; Secretary William Schmidt, Jr.; Major H. S. Barrett, Robert F. Bonnell, C. S. Robertson, C. J. Murphy, W. H. Cassell, E. M. Sturtevant, H. K. Dodson (the 'only'), G. R. Althen, Albert Faber, W. J. Bray, and other good ones. During the season the White Sox played a number of games outside the League constituents, including contests with the strong teams of the U. G. I. Company, of Philadelphia, and the crack team of the Brooklyn Edison Company. These games necessitated trips to Philadelphia and Brooklyn."

F. L. KNOBLOCH and associates have applied to the City Council of Thibodaux, La., for the right to there construct and operate a gas plant.

MESSRS. HODENPYLE, HARDY & CO., of New York, are attempting to obtain all the stocks of the corporation controlling the Portland (Maine) Gas Company. To that end they have deposited the sum of $10,000 with the Union Safe Deposit & Trust Company of Portland, as a guarantee that, if all of the stock in the Portland Gas Company is deposited on or before the 15th prox., with the necessary power-of-attorney to sell, the $10,000 will be forfeited if they do not accept and pay for all of the stock at the rate of $130 per share on or before December 15th.

"YOURS TRULY," writing under date of the 20th inst., from Fort Wayne, Ind., notes that the employees of the Indiana Lighting Company, resident in Fort Wayne, were the guests at a beefsteak dinner served in the Commercial Club the evening of the 18th, the host being Assistant General Manager Samuel T. Mulholland. The feast was arranged originally as a testimonial to the "Good Service Club" an organization composed of the Company's accounting men; but the "boss" eventually decided that this looked a bit like making "fish and flesh", etc., so he ordered that the entire force be invited. The worst of it all, however, was at the appointed hour Mr. Murdock could not join the bunch at table. However, he "wired" his regrets. Mr. J. W. Barrett's address was probably the speech of the evening, his text being "The Relation of the Employee of a Public Service Corporation to the Public." The "cabaret accompaniment" was notable for the antics of a black-faced pair, who were "funnily" introduced by Mr. Mulholland as the first and last Presidents. The pair travel under the partnership title of Washington and Wilson. Pleasing music was furnished by Ashbaugh's orchestra, and a right jolly time was had. The workmen employed in the plant, whose duties precluded their attendance in person, were supplied with heaping baskets of the viands served during the meal.

THE report of the United Light and Railways Company for the month of August, 1912, shows that its gross earnings were $395,551.60, a gain equal to 11 per cent. on the showing made in August, 1911; and gratifying as such showing undoubtedly is, its net result is still better, in that the net for the month increased 16.1 per cent. Interest account for 1912 shows a decrease equal to 2.1 per cent., comparing that with the like return for 1911. All of which speaks rather pronouncedly in favor of the clever management of President Frank T. Hulswit and his associates.

MR. GEORGE DIELMANN has been appointed local manager of the Olympia (Oregon) Gas Company, vice Mr. H. H. Whiteside, Jr., who has been named to manage the new business of the Tacoma (Wash.) Company.

THE City Council of New Westminster, B. C., has been instructed to take immediate steps towards the purchase of a municipal gas plant producing site, for which an appropriation of $225,000 was made last June. This action was taken because the repealing by-law passed some time ago by Council, taking away the privileges of the New Westminster Gas Company, a private corporation, was quashed by Court order a few days ago, the Council deemed it expedient to make its try at once.

MR. HOLLIS GODFREY, of West Medford, Mass., who has been a co worker with Mr. F. W. Taylor, of Philadelphia, the exponent of "Scientific Efficiency", has received the provisional appointment as Chief of the Bureau of Gas, Department of Public Works, Philadelphia. He succeeds Dr. N. Wiley Thomas, and will act until early in 1913, when it is understood a permanent head (likely a native Philadelphian) will be named from the Civil Service list—Heaven save the mark! Last Spring Director Cook, of the Department of Public Works, Philadelphia, commenced a study of the street lighting problem with the thought of improving conditions and reducing costs by making changes in the administrative section of the Bureau, and Mr. Godfrey attracted the attention of Director Cook, through the investigations by the former of the water works system of the city. Mr. Godfrey is the author of the well-known volume (1910) entitled "The Health of the City."

THE Cushing Gas Company, capitalized in $50,000, has been formed by Messrs. Chas, J. Wrightman, B. B. Jones and Jno. Devereux, to construct and operate a gas plant in Cushing, Okla.

"S." WRITING from Brooklyn, N. Y.. under date of the 22d inst., says: "I inclose the following mention of the death of one whose life was that of a hard-working, self-respecting man: William Scott, whose home was in 451 Bainbridge St., Brooklyn, N.Y., died suddenly, in Buffalo, N. Y., the afternoon of Saturday, September 7th. At the time of his decease he was employed on a job that was being done in Buffalo by Messrs. J. H. Gautier & Co., of Jersey City, N. J. Mr. Scott had been in the employ of the Jersey City firm since 1890. Deceased was born in New York City, February 14, 1868, and resided there until 1902, when he removed to Brooklyn. He was well-known as a bench builder, especially in this section of the East. He was a life-long member of the Protestant Episcopal Church and had given much attention to the tenets of Free Masonry. He leaves a widow, a son, and 3 daughters. Interment was made in Evergreen Cemetery.

SUPERINTENDENT EHRHART, of the Bellefontaine (Ohio) Municipal Gas Plant, has at last been given a spark of hope that Mayor Prall and his fellow-officials are about to hunt up ways and means for the bettering of the works and the main system. The officials are complaining that Ehrhart is not getting enough result out of the plant, in the way of production; but the appliance men who have "visited" in that section recently are wondering how the Superintendent is managing to get along as well as he does. It was said many, many years ago that it is impossible to make a silk purse out of a sow's ear; and it may be said to-day that it is equally impossible to put gas through a sieve and have the passing by of the vapor, through mains that resemble colanders, register on a consumer's meter.

The Market for Gas Securities.

The market for city gas shares was decidedly on the off-side last week, quotations both for shares and bonds being off an average of 2 points. Undoubtedly the war skies in Europe—far from dangerous looking at the moment—added to the recriminations political that are going on between the adherents of the three aspirants for the Presidency—may account for the timidity of capital. And that it is becoming timid seems well-shown in the hardening rates for both call and time money. However, it is undeniable that business of the real sort is improving every minute, and increased trading of a verity means increased use of gas in the factory, shop and store. Consolidated opened to-day (Friday) at 143 to 143½, and the trading was of the dullest sort.

The list tells the balance of the story. They are all weaker, but to the contrary there is every evidence that they should be all higher.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

OCTOBER 28.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$78,177,000	100	143	143¼
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	8,000,000	1,000	103	105
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	105	106
Mutual Gas Co.	8,500,000	100	182	187
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	101	102½
New York & Richmond Gas				
Co. (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold Bds. 5 p. ct.	1,500,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	95	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	99½	101
Standard	5,000,000	100	60	70
Preferred	5,000,000	100	90	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	143	149
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	⅝	¼
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	509,000	1,000	97	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	85
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,660,000	1,000	104	105¼
Cincinnati Gas and Electric				
Co.	29,500,000	100	87	90
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90½	91
Preferred	3,026,500	100	75½	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084	—		—
Mortgages, 5's	3,400,000	—		—
General Mortgage 4½	10,661,000	—		—
Con. Gas Co., Baltimore				
City, 4½	2,751,000	—		—
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	94	96
Bonds	75,000	—	—	100
Detroit City Gas Co.	6,580,000	—	—	50
Detroit Gas Co., 5's	381,000	1,000	75	80
" Prior Lien 5's	5,619,000	1,000	97	100½
Equitable Gas & Fuel Co.,				
Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	132	136
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	130	133
" Bonds, 5's	10,500,000	—	104	106
Indianapolis	2,000,000	—	38	45
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	91	95
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	8,822,000	1,000	98½	99
Laclede Gas Co., St. Louis	10,000,000	100	106½	106¾
Preferred	2,500,000	100	99	102
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	120	130
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	
Massachusetts Gas Companies, of Boston	25,000,000	100	93¾	94
Preferred	25,000,000	100	96	96½
Montreal Gas Co., Canada	2,000,000	100	236	238
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	97	98
Bonds, 6's	6,000,000	—	127	128
New Haven Gas Co.	5,000,000	25	182	190
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	119	119½
1st Mortgage	20,100,000	1,000	102	102½
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105¼
Pacific Gas and Electric Co.	15,500,000	—	63¾	64¼
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	96	98
St. Paul Gas Light Co.	2,500,000	100	—	—
1st Mortgages, 6's	650,000	1,000	104	105
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	3,447,000	1,000	94	96
Syracuse Gas Co., N. Y.	1,975,000	100	50	55
Bonds	2,047,000	1,000	101	103
Washington (D. C.) Gas Co.	1,600,000	200	420	425
1st Mortgage, 6's	600,000	—	—	—
Western Gas Co., Milwaukee	4,000,000	—	—	—
Wilmington (Del.) Gas Co.	600,000	50	—	—

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October——— 1913. Officers: President, W. R. Addicks, New York City. Secretary, Geo. G. Ramsdell, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting Sept. 1913. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, New York City, Oct.—1913. Officers: President, C. G. M. Thomas, Long Island City, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gas Meters.—Next meeting, Nov. 7. Chairman, Will W. Barnes; Commissioners, W. H. Pettes, I. W. Pefly; Secretary, H. Thurston Owens, 42 Pine street, New York City.

Guild of Gas Managers of New England.—Annual meeting, March, 1913. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, March 19th and 20th, 1913. Chicago, Ills. Officers: President, H. O. Channon, Quincy, Ills.; Secretary-Treasurer, Horace H. Clark, 115 No. Oak Park avenue, Oak Park, Ills.

Illuminating Engineering Society.—Annual meeting,——————— September, 1913. Meetings of Sections, monthly. Pres., V. R. Lansingh, Cleveland, O.; Sec., Preston S. Millar, 29 W. 39th street, New York City. Sections: New York, Secretary, C. L. Law, 124 West 42d street. New England, Secretary, H. C. Jones, 10 High street, Boston, Mass. Philadelphia, Secretary, L. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, J. B. Jackson, 28 North Market street. Pittsburgh, Secretary, J. C. Mundo, Oliver Building.

Indiana Gas Association.—Annual meeting, March 12 and 13, 1913. Indianapolis. Officers: President, Howard L. Olds, Indianapolis; Vice-President, Wm. Wallace, Lafayette; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, Burlington, Ia., May 22, 23, 24, 1913; Officers: President, C. W. Fair, Atlantic, Ia.; Secretary, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, October, 1913. Manhattan, Kas. Officers: President, B. F. Eyer, Manhattan, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, September——1913;——————— Officers: President, W. S. Blauvelt, Detroit, Mich; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1913; Joplin, Mo. Officers: President, P. A. Bertrand, Joplin, Mo.; Secretary and Treasurer, P. W. Markham, Brookfield, Mo.

National Commercial Gas Association.—Annual meeting and Gas Show, Dec. 2-5, 1912. Atlanta, Ga. Officers: President, C. L. Holman, St. Louis, Mo.; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, Cleveland, O., May, 1913; Officers: President, M. B. Daly, Cleveland, O; Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, February,——————1913. Boston. Officers: President, D. D. Barnum, Worcester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—Winter Meeting, December——, Newark N. J.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn Belmar, N. J.

Ohio Gas Association.—Annual meeting, February ———, 1913, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary, L. B. Denning, Columbus, O.

Oklahoma Gas, Electric and Railway Association.—Annual meeting, May, 1913. President, Noel R. Gascho, Alva, Okla.; Secretary, H. V. Bozell, Norman, Okla.

Pacific Coast Gas Association.—Annual meeting, San Jose, Cal., September 16, 17, 18 1913. Officers: President, Henry E. Adams, Stockton, Cal.; Secretary-Treasurer, Henry Bostwick, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, York, Pa., April, 1913; Officers, President, H. H. Ganser, Norristown, Pa.; Secretary-Treasurer, W. O. Lamson, Jr., West Chester, Pa.

Society of Gas Lighting.—Annual meeting Dec., 13, 1912; monthly meetings, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 29 West 39th street, New York city

Southern Gas Association.—Annual meeting, Charlotte, N. C., April——— 1913, Officers: President, C. E. White, Montgomery, Ala.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. April———1913, Galveston, Tex. Officers: President, F. M. Lege, Jr., Galveston, Tex.; Secretary, H. S. Cooper, 405 Slaughter Bldg., Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May ——— 1913, Milwaukee, Wis. Officers: President, I. F. Wortendyke, Janesville, Wis.; Secretary-Treasurer, Henry Harmon, Milwaukee, Wis.